DRD TECHNOLOGY

CAD Embedded Simulation Versus Ansys Simulation

Kevin Adams – Senior Applications Engineer

February 12, 2026

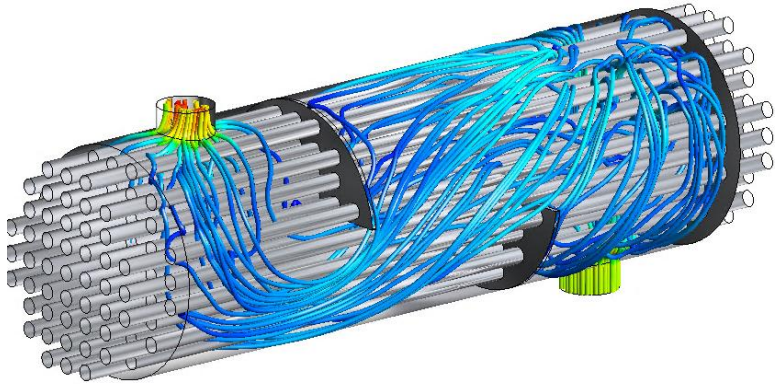
DRD

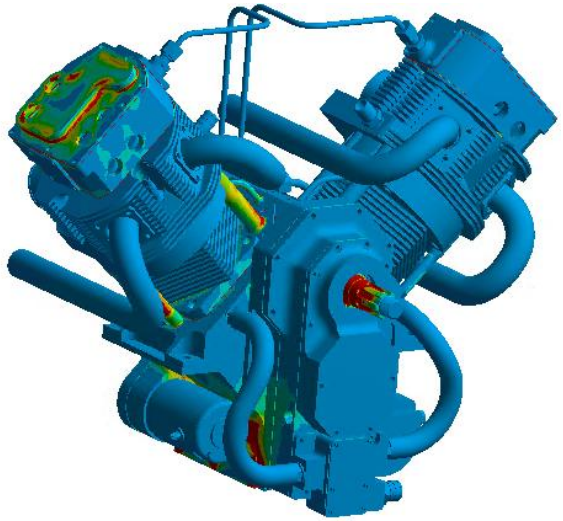
Agenda

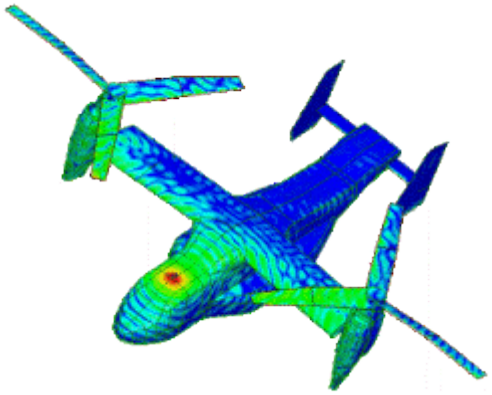
- Introduction to DRD
- Advantages of CAD Embedded Simulation
- Reasons CAD Simulation Users Migrate to Ansys Mechanical
- Demonstration of SolidWorks and Ansys Mechanical Integration
- Ansys Multiphysics
- Questions

Mission Statement

DRD Technology helps engineering teams accelerate product development. With in-house expertise spanning the entire range of physics, we ensure customers succeed when using Ansys simulation tools for virtual prototyping and design verification.







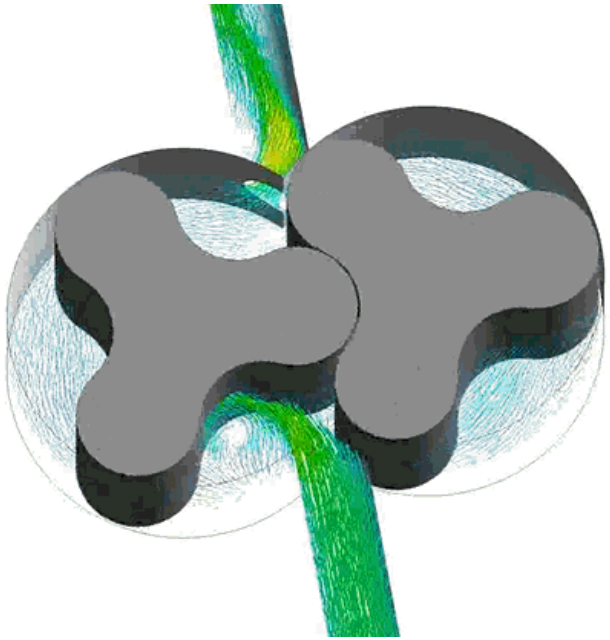
Ansys

CERTIFIED ELITE CHANNEL PARTNER

DRD History

Since 1980, DRD Technology has been focused on engineering simulation.

In 1984, DRD became an Ansys Channel Partner.



Lobe pump

I've been working with DRD for 29 years. Working with your team has been one of the more enjoyable parts of my career. You have always been ready to help in any way.

- Rick Kunc
Sr. Research & Development Engineer

SOLVAY
asking more from chemistry®

Ansys
CERTIFIED ELITE CHANNEL PARTNER

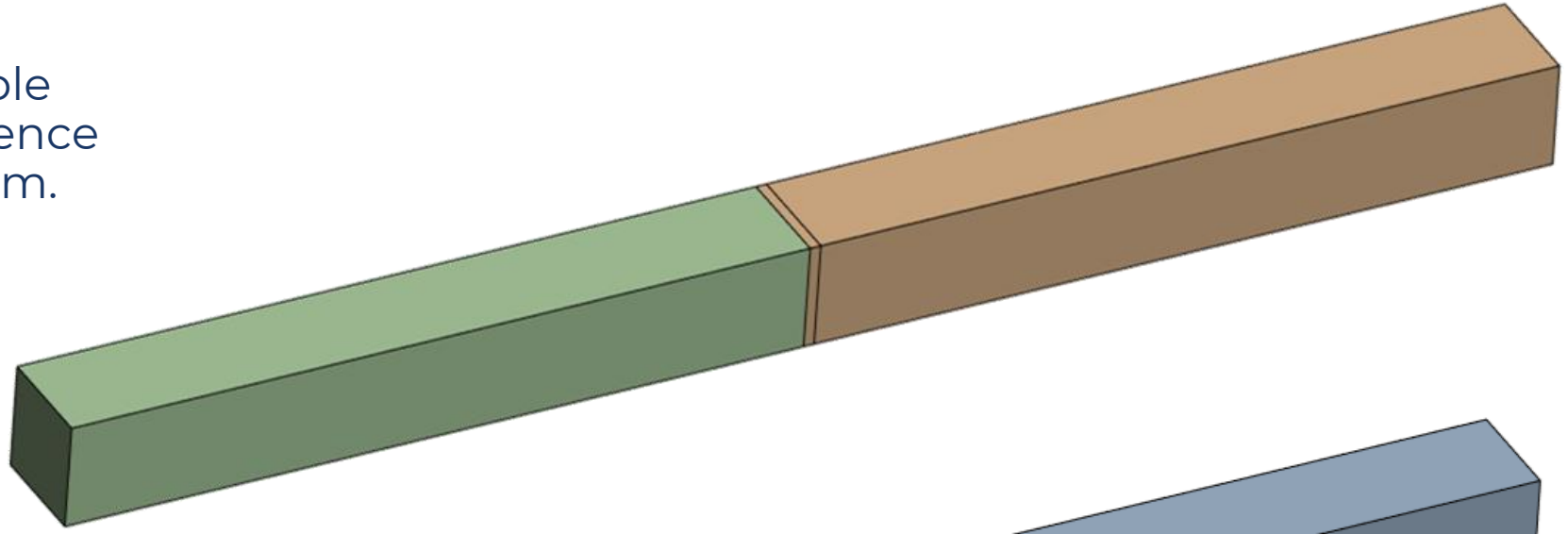
DRD

Advantages of CAD Embedded Simulation

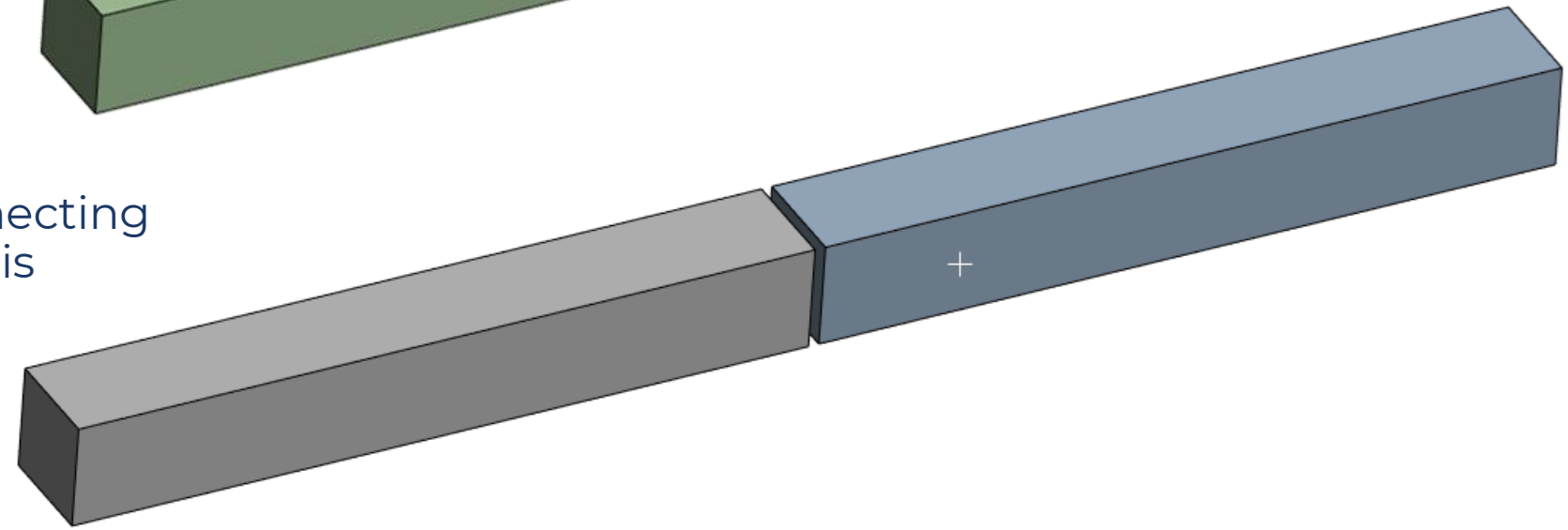
- **Convenience:**
  - Users do not have to leave their CAD tool to run simulation.
  - Designers do not need to learn a separate piece of software for FEA.
  - Geometry changes can be made in the same interface as the analysis.
- **Cost:**
  - CAD simulation licenses are less expensive than Ansys licenses.

Contact for Imperfect CAD

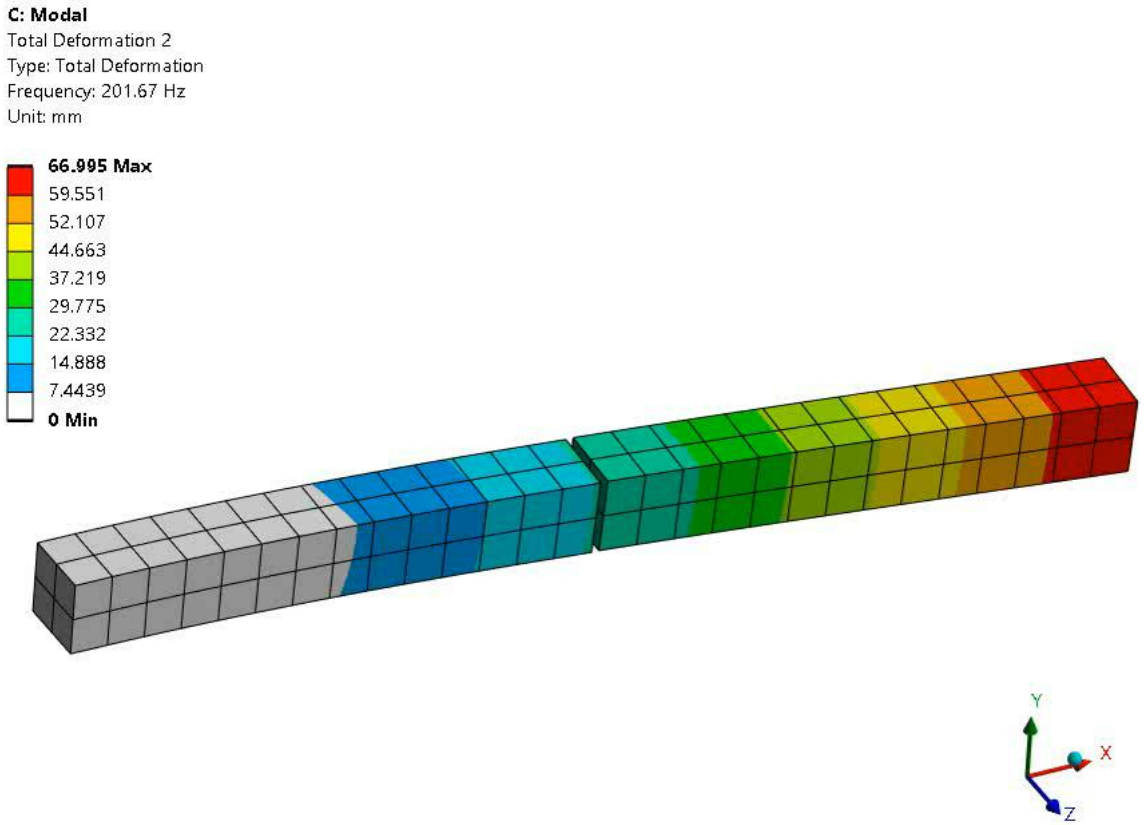
Simple cantilever beam example showcasing clearance/interference between two halves of the beam.



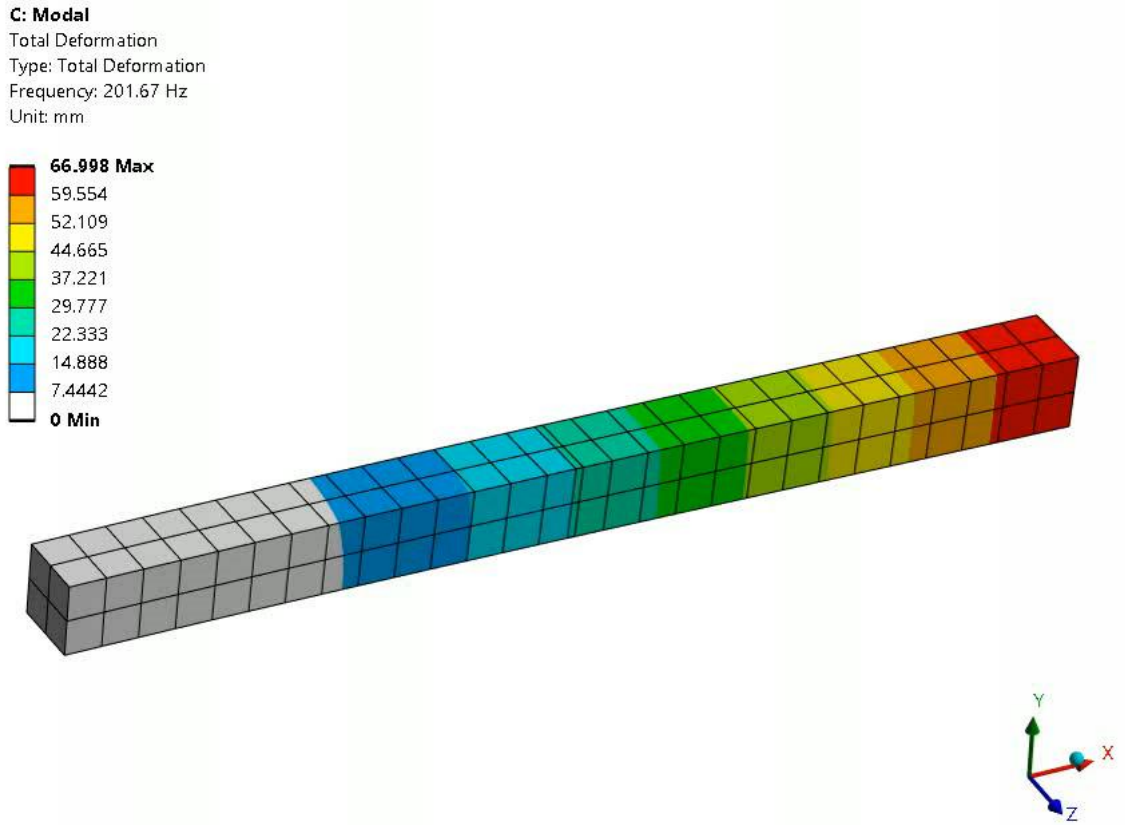
Ansys contact allows for connecting parts together even if the ‘fit’ is imperfect.



Contact for Imperfect CAD



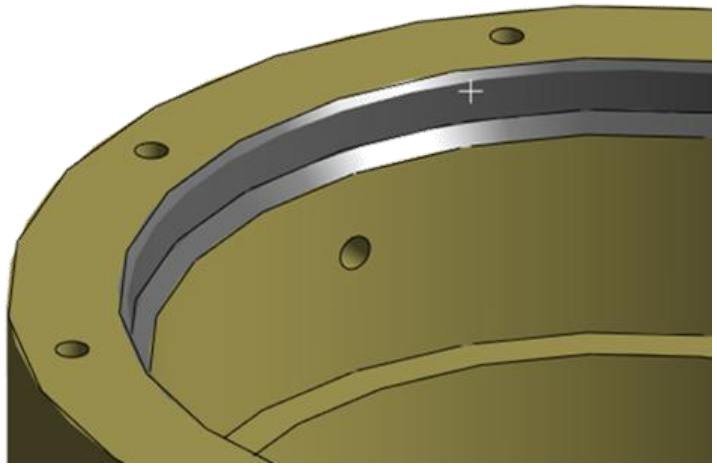
Assembly with clearance

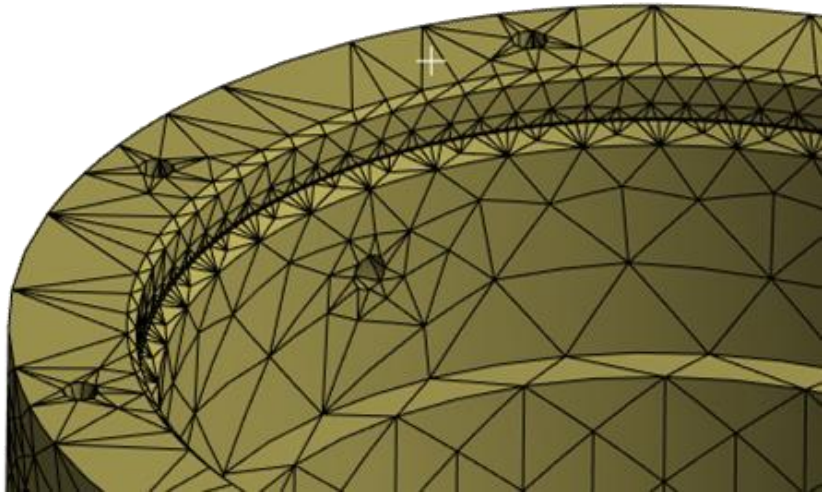


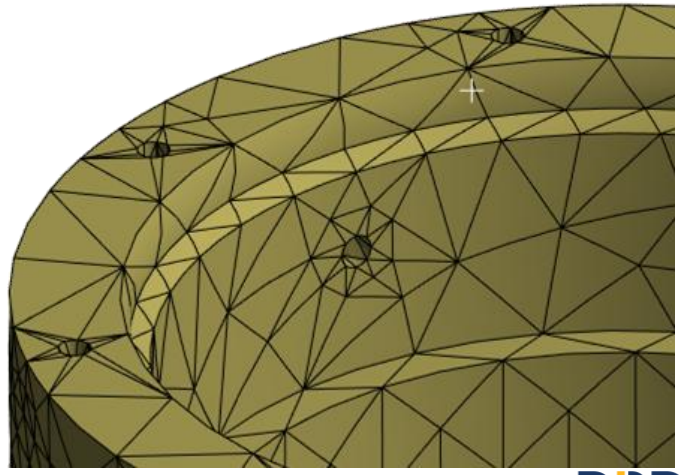
Assembly with interference

Ansys Mechanical Virtual Topology

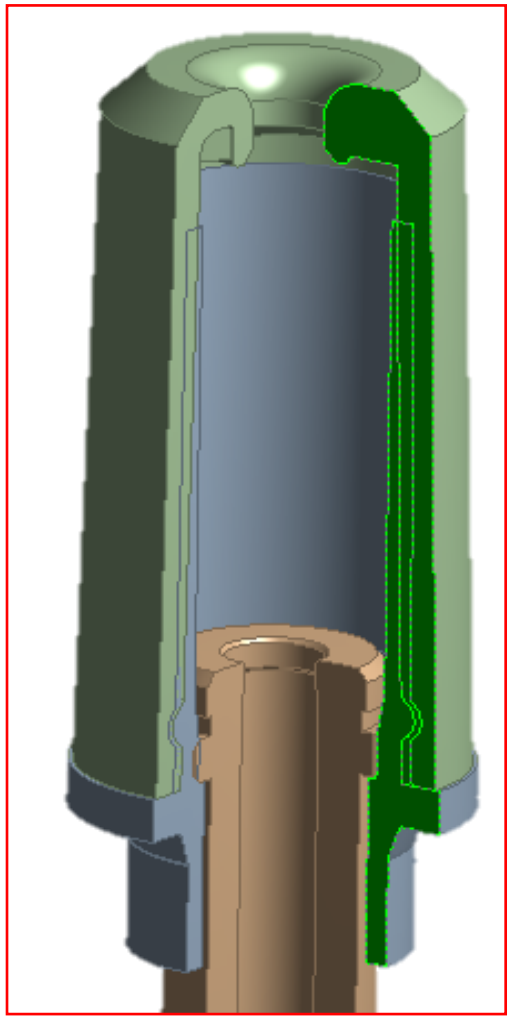
Ansys Mechanical's Virtual Topology feature allows removal of specific geometric entities from being meshed.







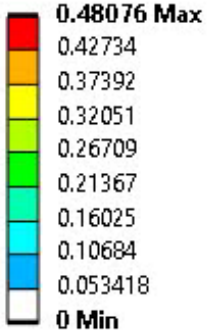
Cell Phone Antenna Snap Fit

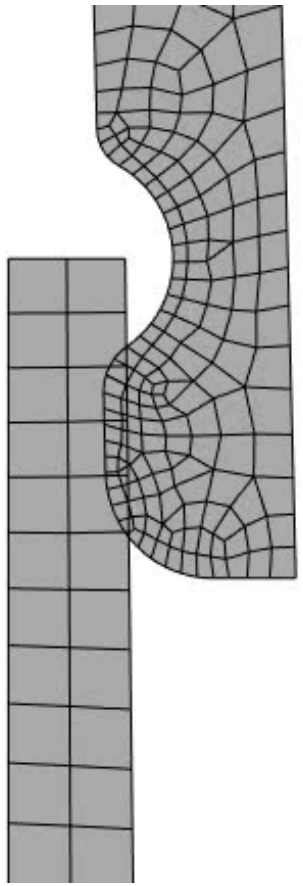


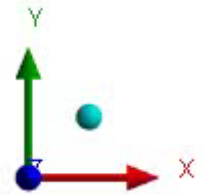
Nonlinear Contact, Snap Fits, Interference Fits

Initial Interference

A: Static Structural
Total Deformation
Type: Total Deformation
Unit: in
Time: 2 s
3/27/2023 9:39 PM





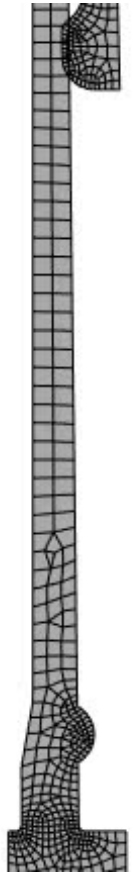


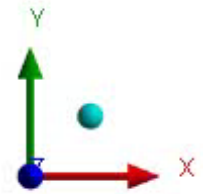
Nonlinear Contact, Snap Fits, Interference Fits

Sliding Contact and Snap Fit

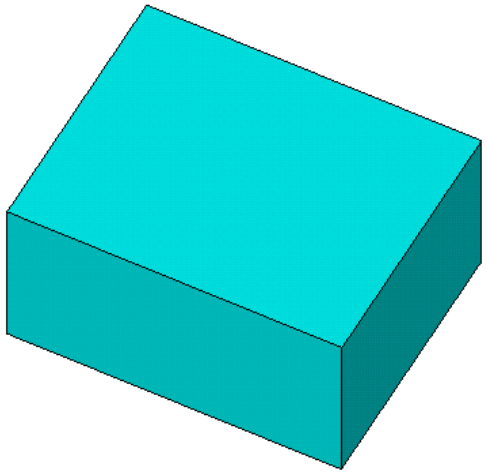
A: Static Structural
Equivalent Stress
Type: Equivalent (von-Mises) Stress
Unit: psi
Time: 3 s
3/27/2023 9:42 PM

17453 Max
15514
13575
11635
9696.1
7756.9
5817.7
3878.4
1939.2
0.00018569 Min

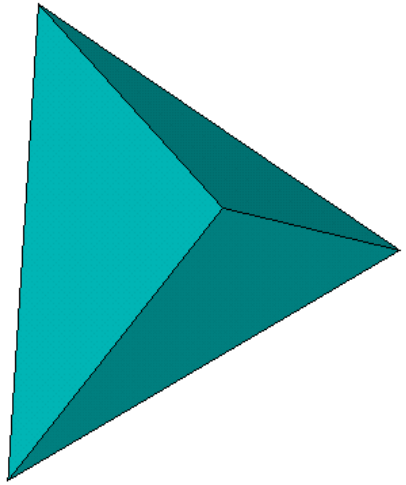




Brick vs. Tetrahedron Meshing

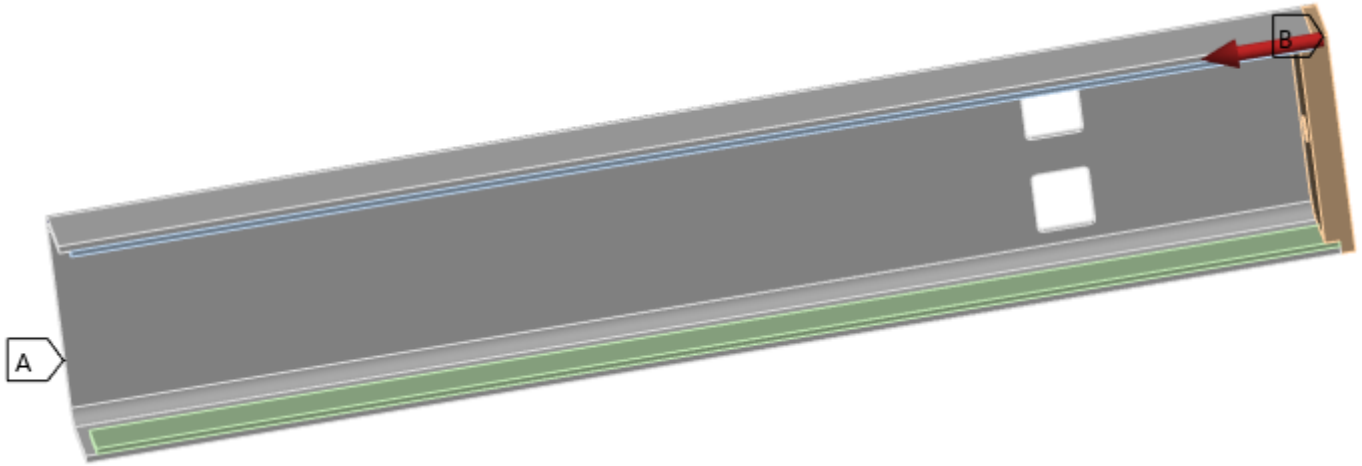


3D Solid Brick
Finite Element



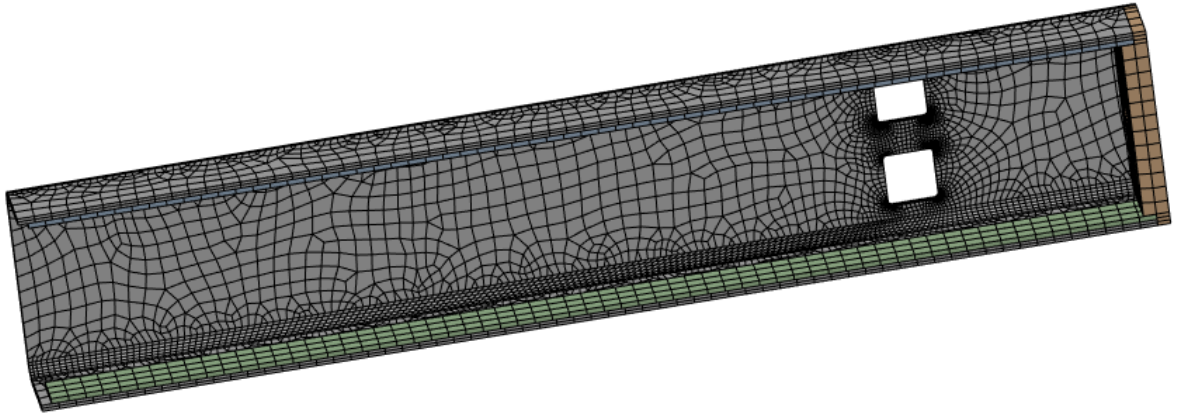
3D Solid Tetrahedron
Finite Element

Brick vs. Tetrahedron Meshing

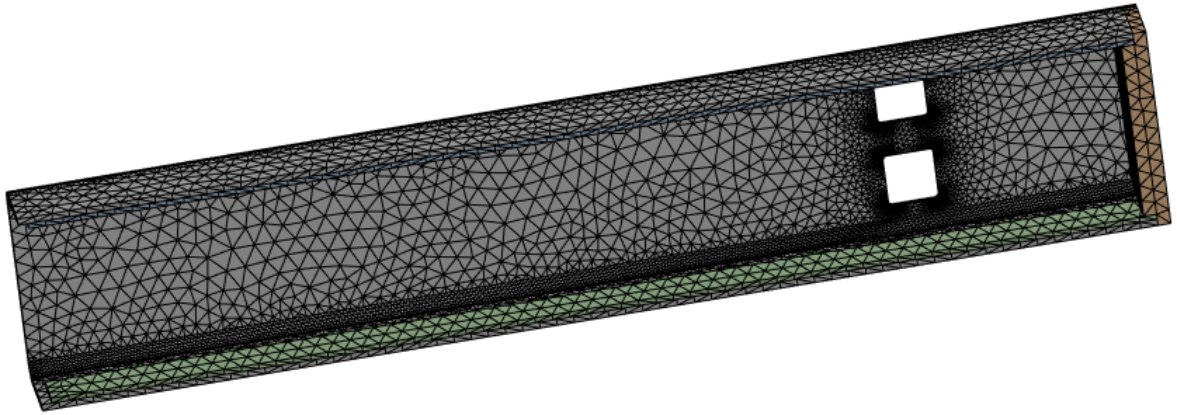


Mesh Type	# of Nodes
Bricks	20,098
Tetrahedrons	143,462

Ratio = 7.1



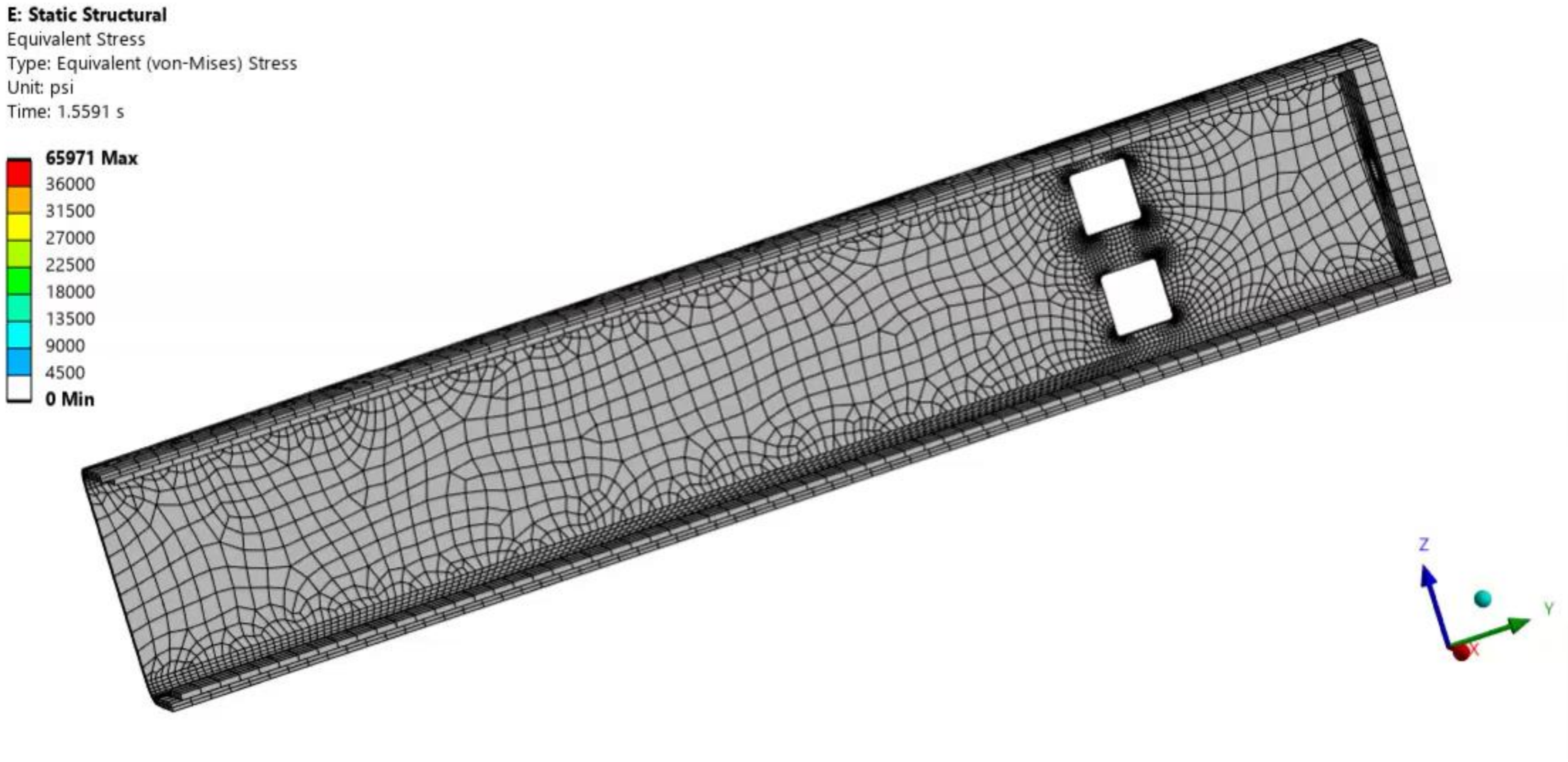
Solve Time = 2m and 54s



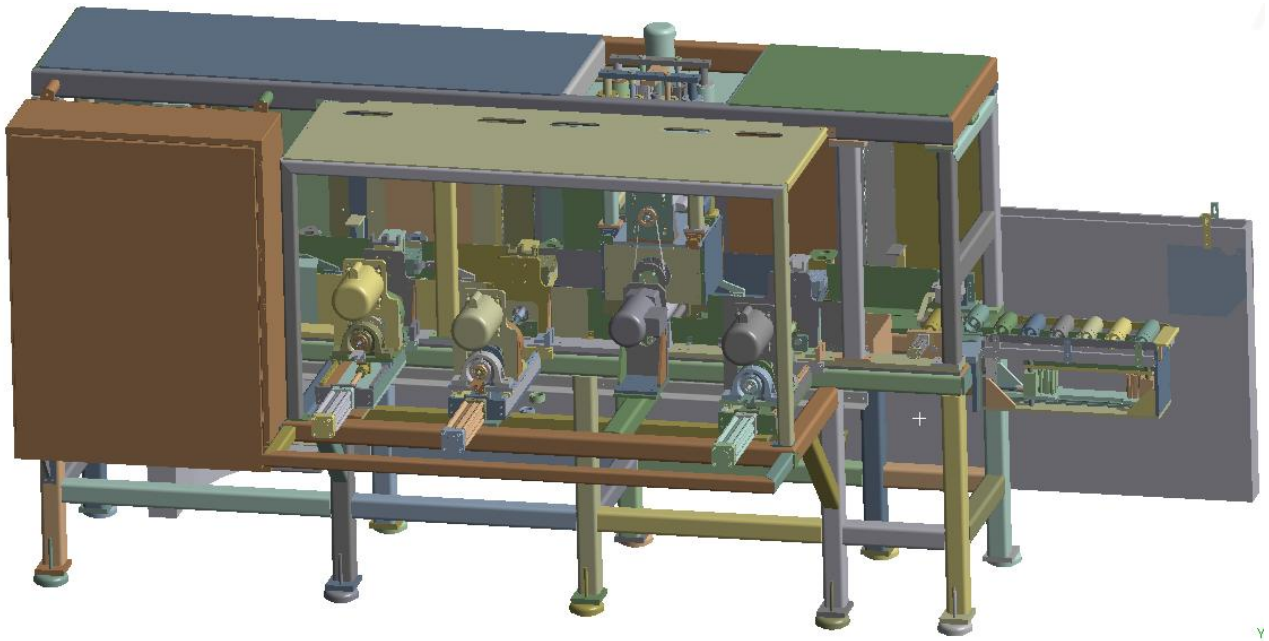
Solve Time = 27m and 49s

9.6x Speedup!

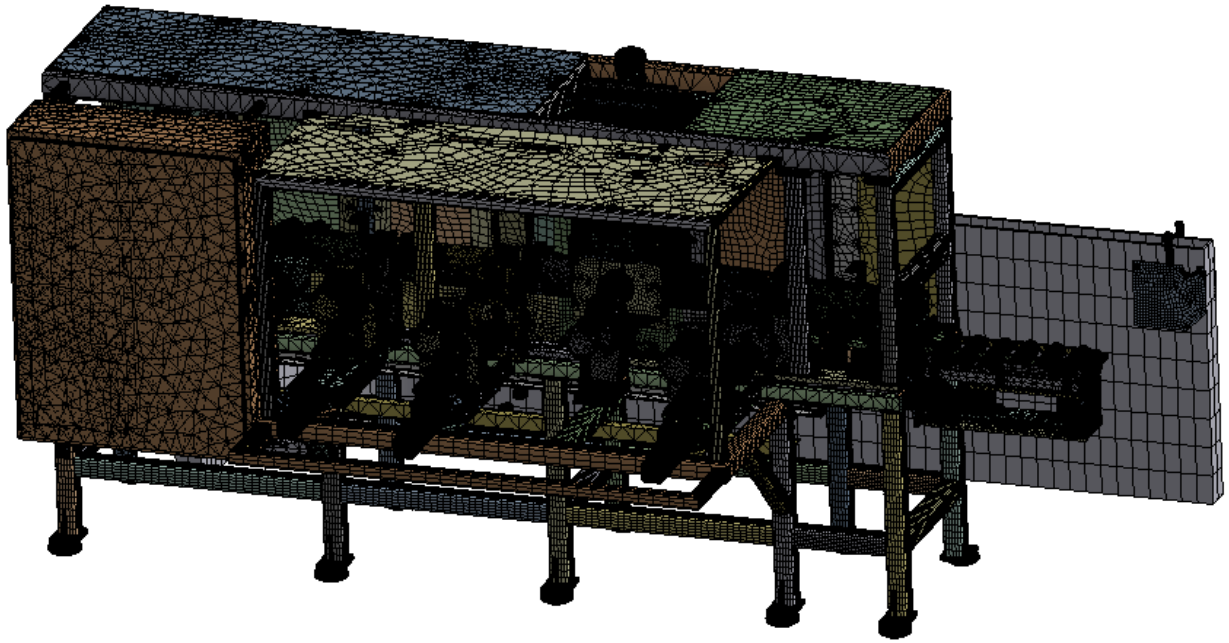
Column Buckling: Plasticity, Large Deformation, Solver Speed



Complex Parts and Assemblies Meshing



Statistics	
Bodies	1199
Active Bodies	1198
Nodes	18181640
Elements	9893095

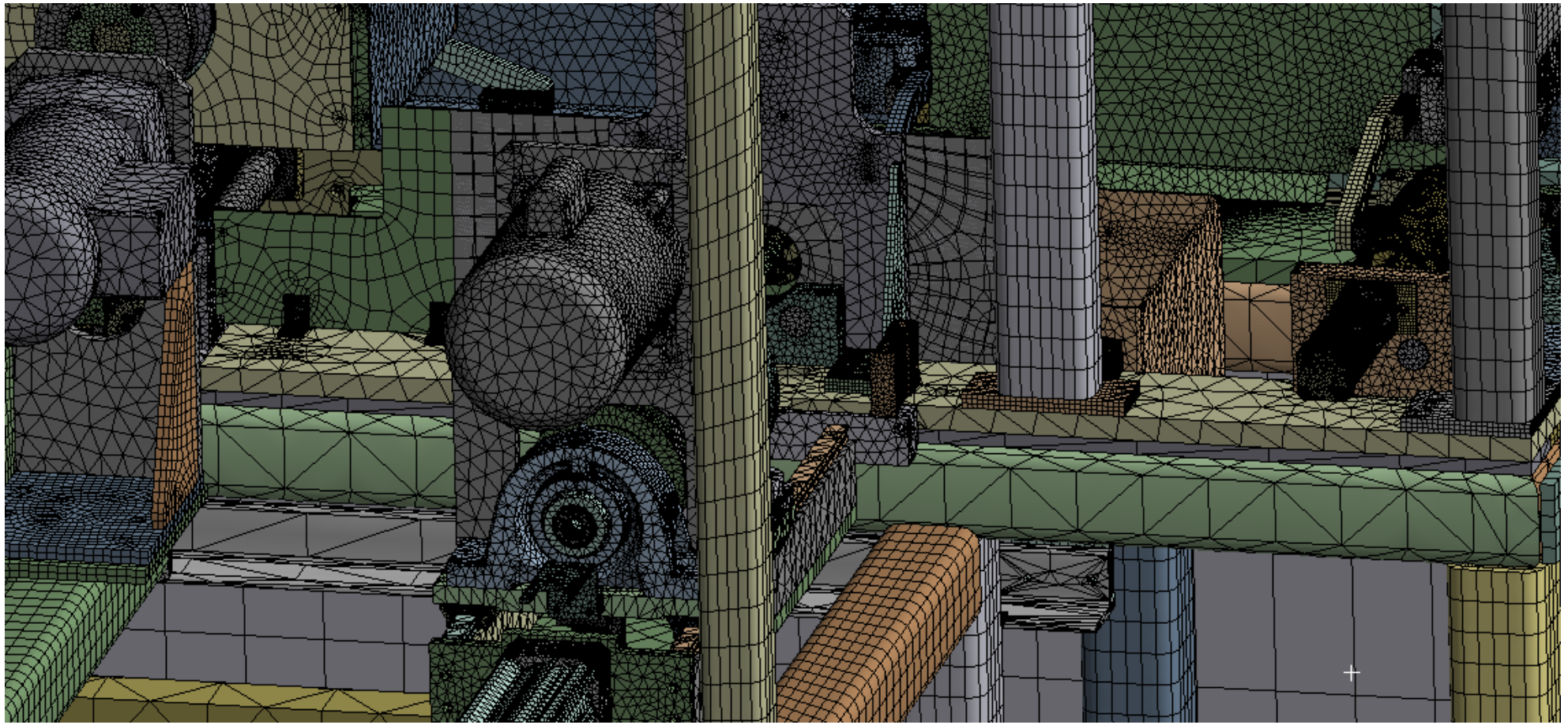


Assembly is meshed with hexahedra and tetrahedra elements.

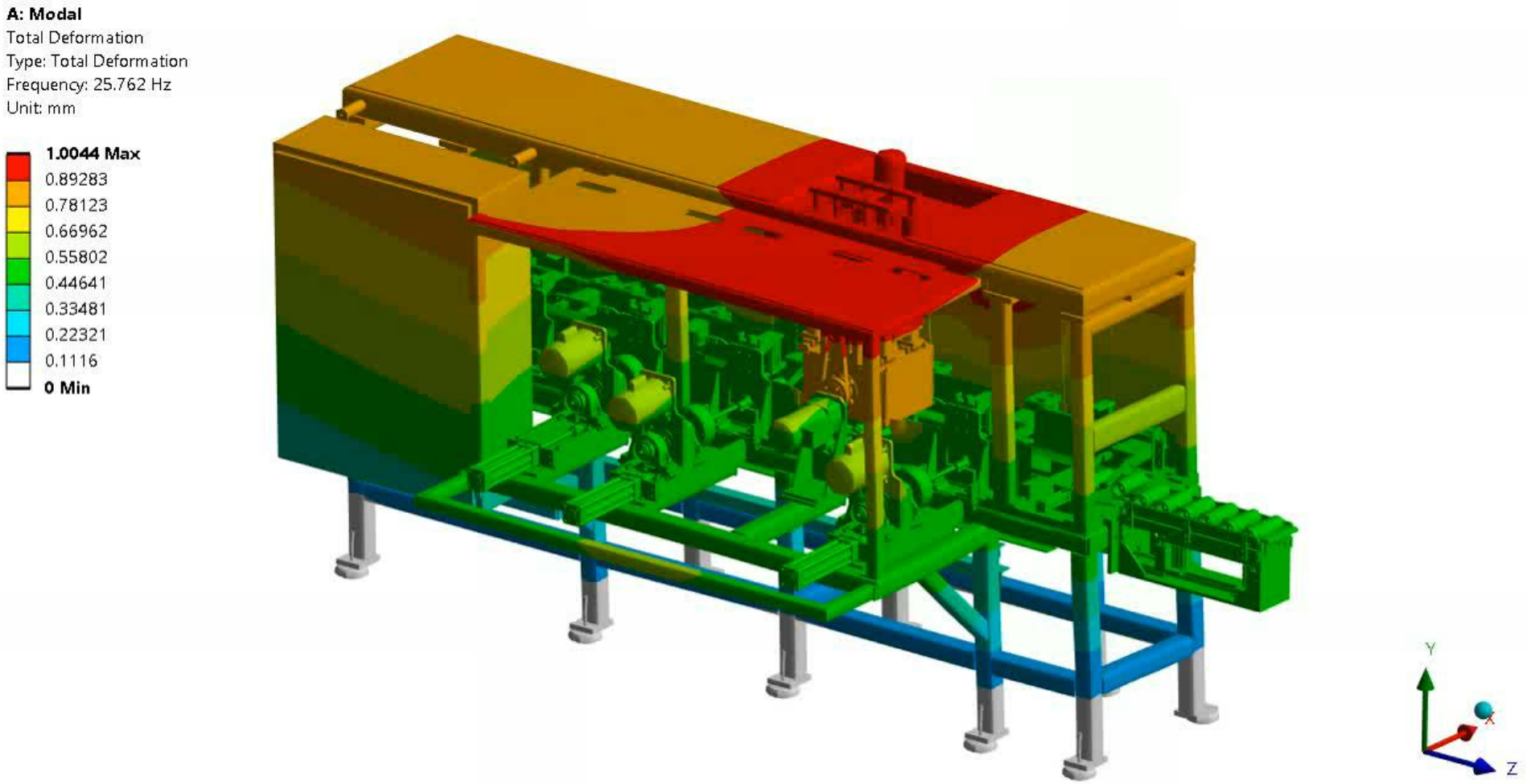
The mesher runs in parallel, i.e. takes advantage of multiple CPU cores without requiring HPC licenses.

This model meshes in ~1 minute on a laptop with 14 cores (6P/8E) and 64 GB memory.

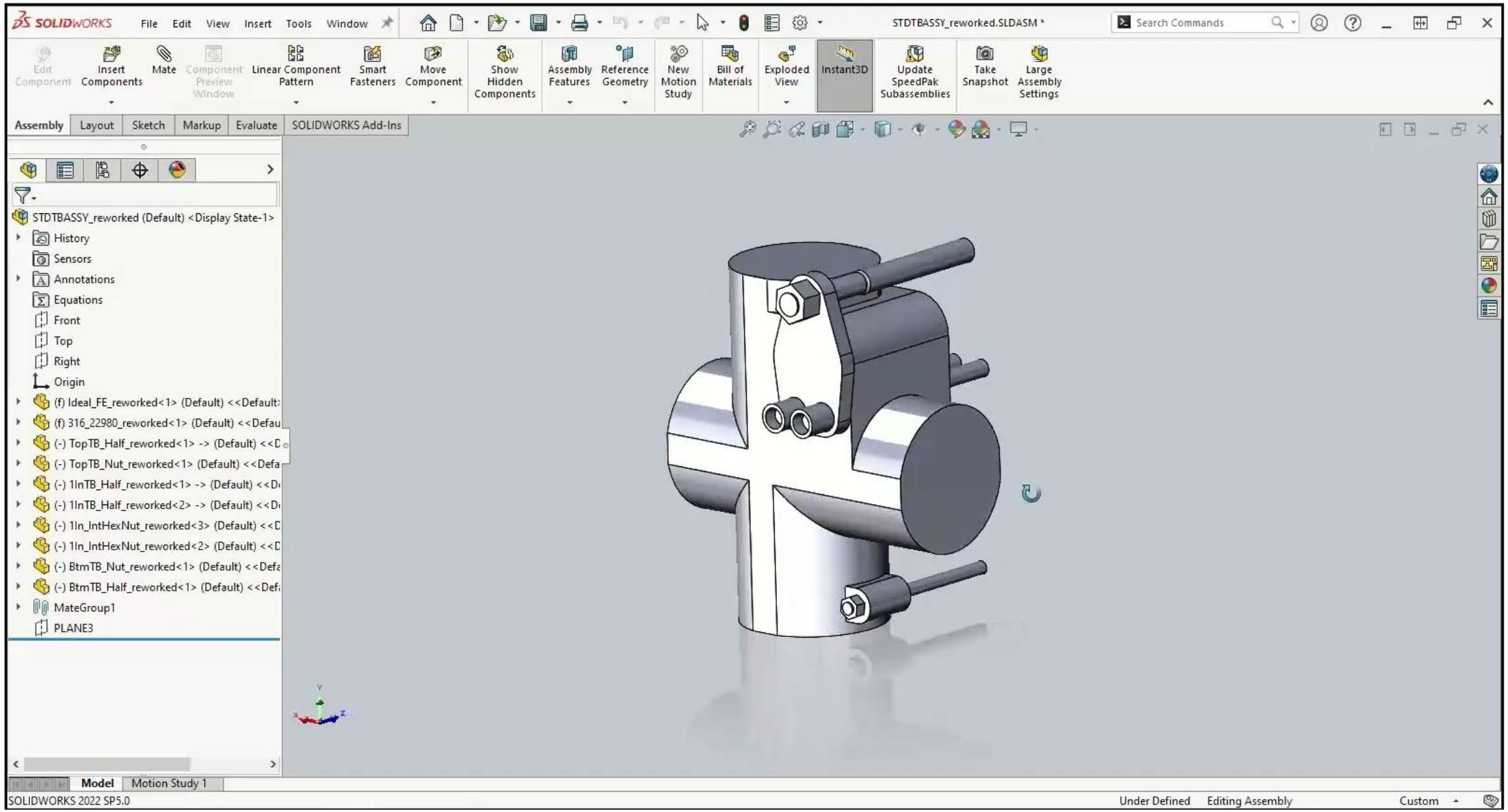
Complex Parts and Assemblies Meshing



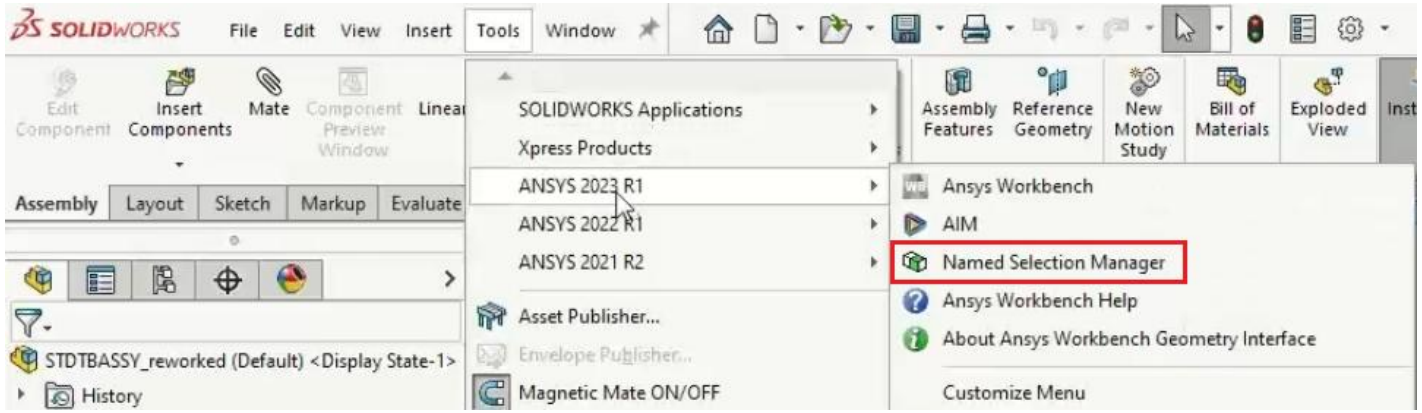
Complex Parts and Assemblies Meshing

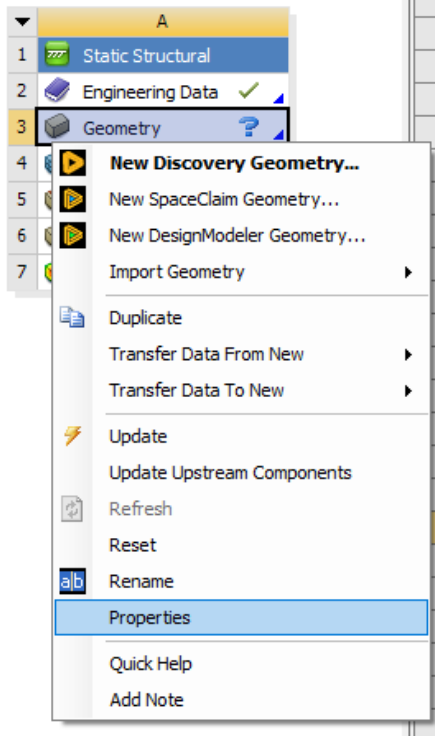


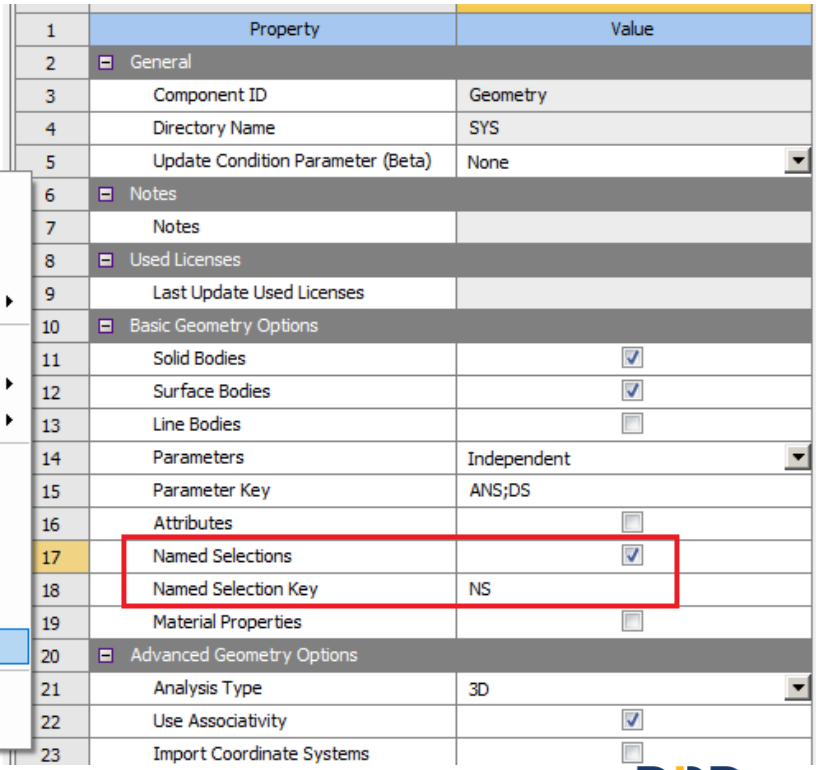
SolidWorks & Ansys Mechanical Demonstration



SolidWorks Named Selection Manager



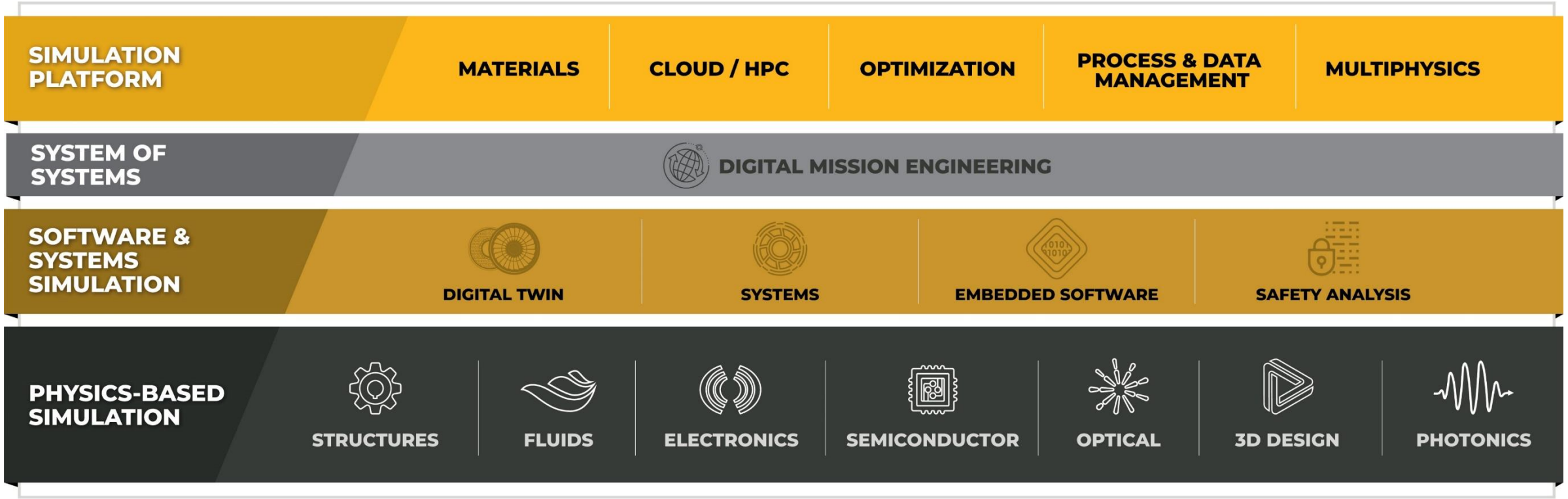




	Property	Value
2	General	
3	Component ID	Geometry
4	Directory Name	SYS
5	Update Condition Parameter (Beta)	None
6	Notes	
7	Notes	
8	Used Licenses	
9	Last Update Used Licenses	
10	Basic Geometry Options	
11	Solid Bodies	☑
12	Surface Bodies	☑
13	Line Bodies	☐
14	Parameters	Independent
15	Parameter Key	ANS;DS
16	Attributes	☐
17	Named Selections	☑
18	Named Selection Key	NS
19	Material Properties	☐
20	Advanced Geometry Options	
21	Analysis Type	3D
22	Use Associativity	☑
23	Import Coordinate Systems	☐

Ansys Delivers Complete System Optimization

Driving efficiency, optimization, collaboration and consolidation



Simulation is All We Do

- 85 Ansys products
- Development team focused on simulation
- A managed, customer-specific learning program to sustain and accelerate the value of engineering simulation

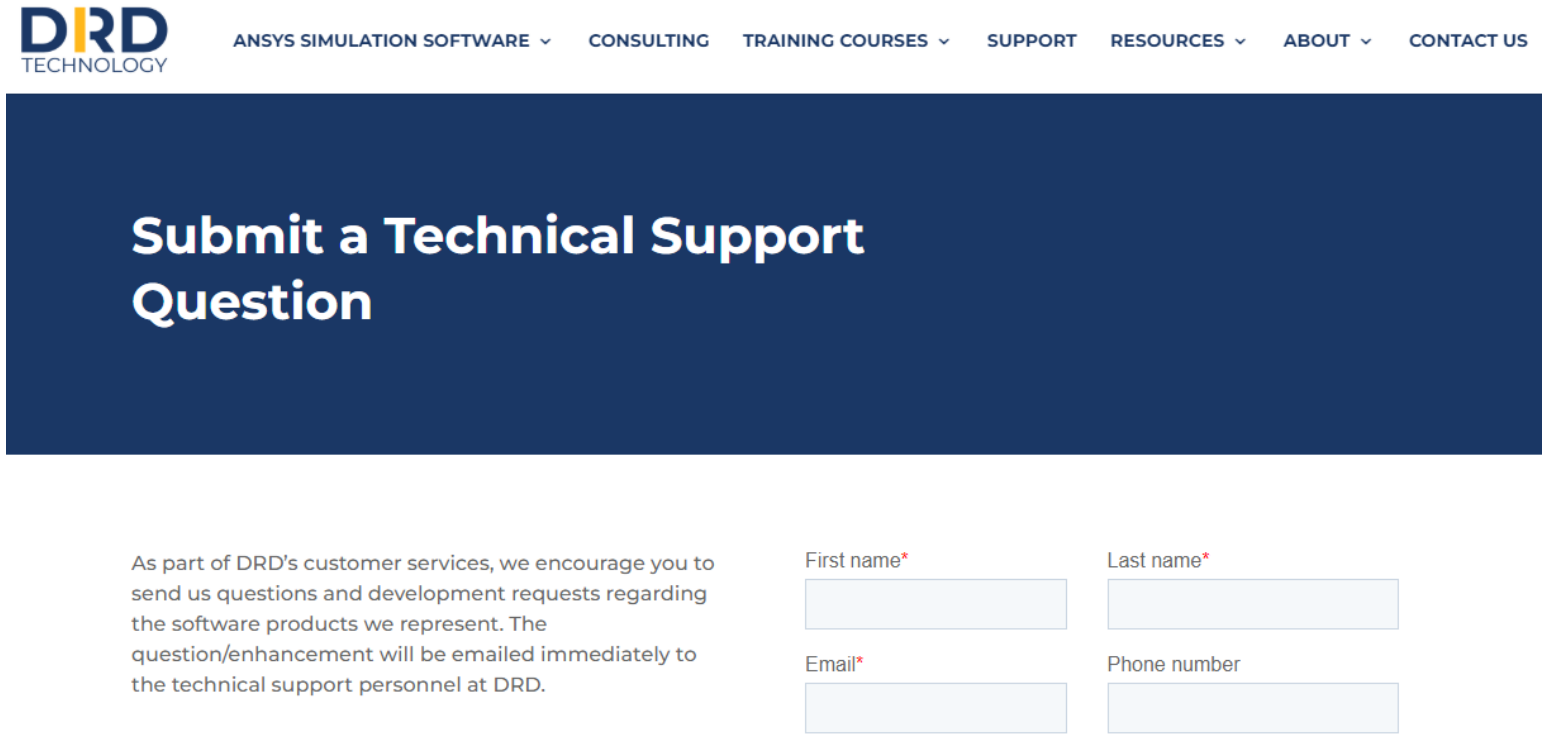
Open Ecosystem

- Integration with partner & competitor products
- Connect on-premises and in the cloud
- Optimized with artificial intelligence and machine learning

Technical Support Contact Coordinates

Support:
(918) 743-3013 x1
support@drd.com

Or through our website at
www.drd.com



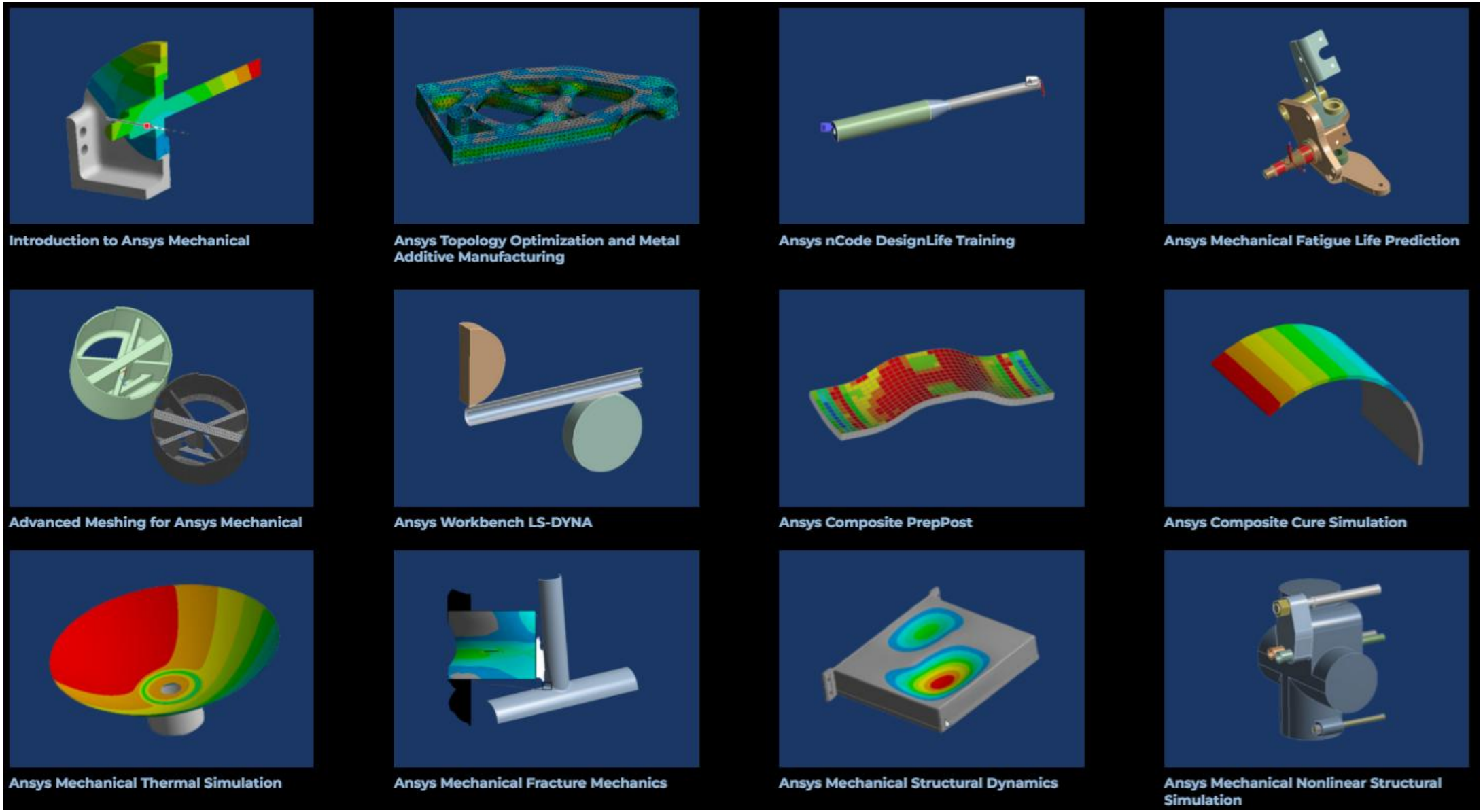
For more than five years, I have worked closely with DRD Technology to execute tactical and strategic initiatives here at EaglePicher due to our unprecedented growth. We've been very happy with DRD and will continue to work with them as our business partner for using Ansys tools effectively and efficiently.

- Doug Austin
Director of Research and Development

EaglePicher™ Technologies, LLC

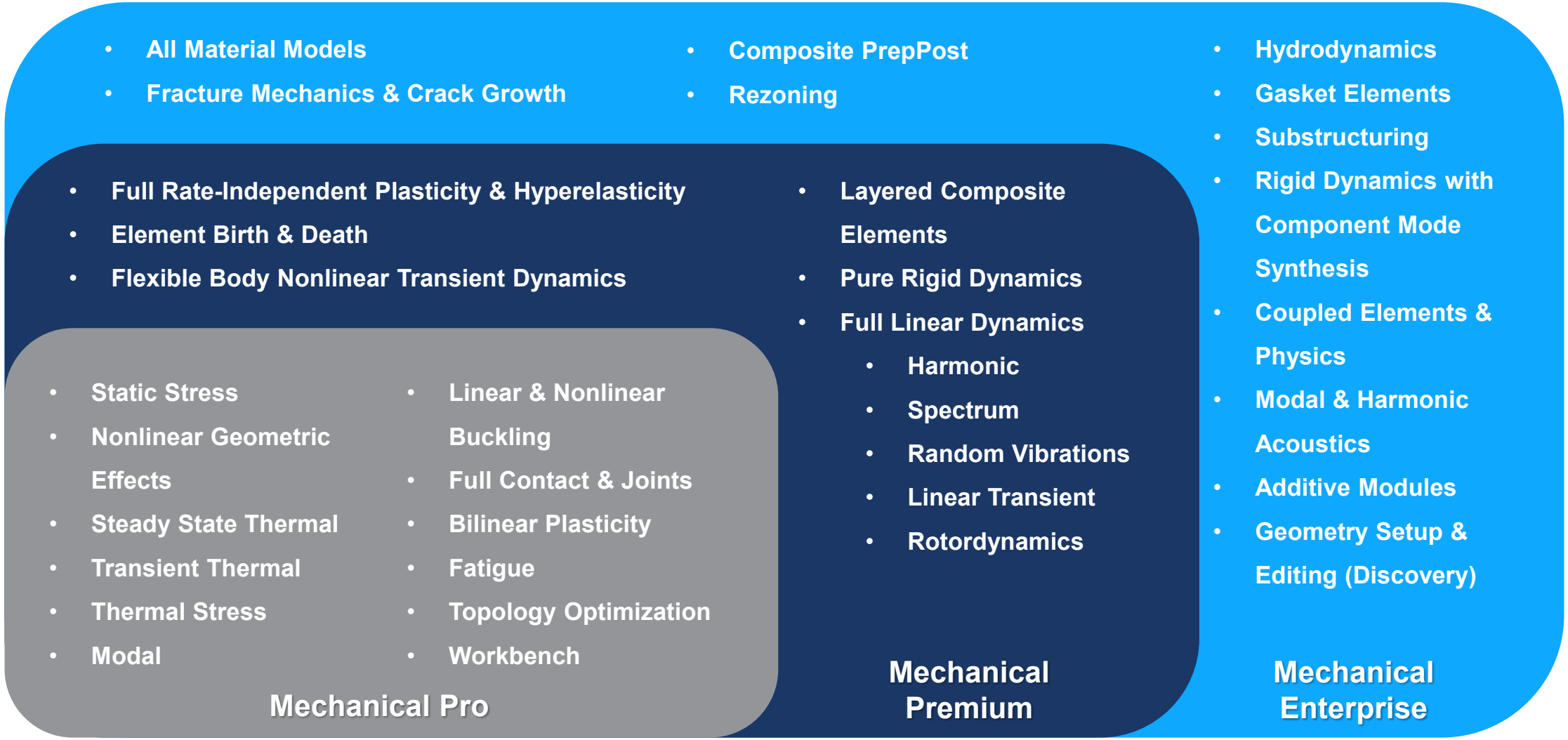
DRD

Ansys Mechanical Training



https://www.drd.com/training

Ansys Mechanical Packaging



Questions

Thanks for your time