

Optimized Wire Coiler for GE Aviation

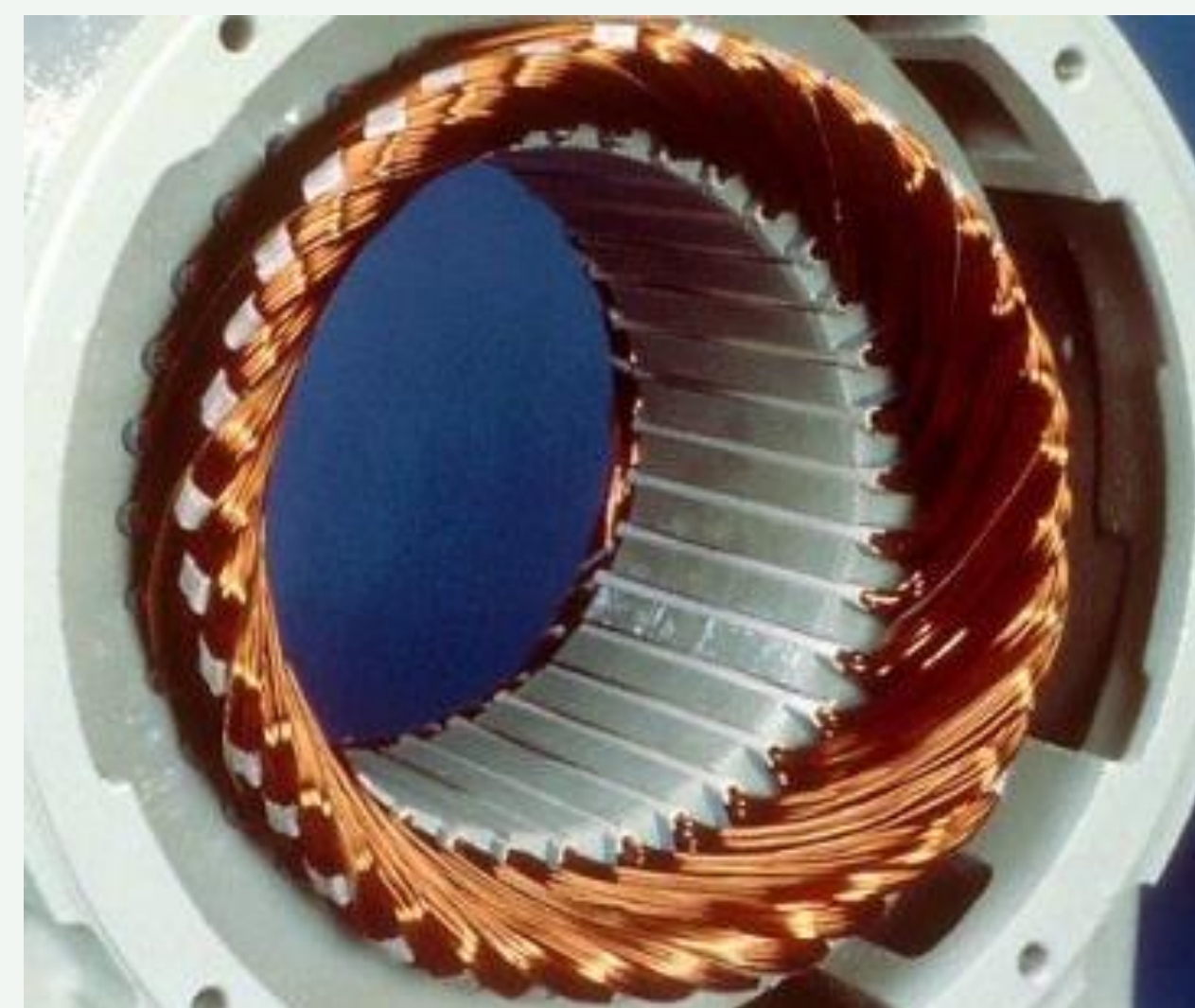
Objective: Create an optimized mandrel to coil copper coils for main stators used in generator prototyping at GE Aviation's EPISCenter.

Parameters:

- Coil height adjustable between 1.85 in and 4 in
- Keep coil size within a tolerance of ± 0.01 in
- Able to coil 24-to-28-gauge copper wire
- Prevent bending in the mandrel arms

Additional Improvements:

- Increased repeatability
- Improved accuracy
- Reduced variation in coil size
- Decreased operation time

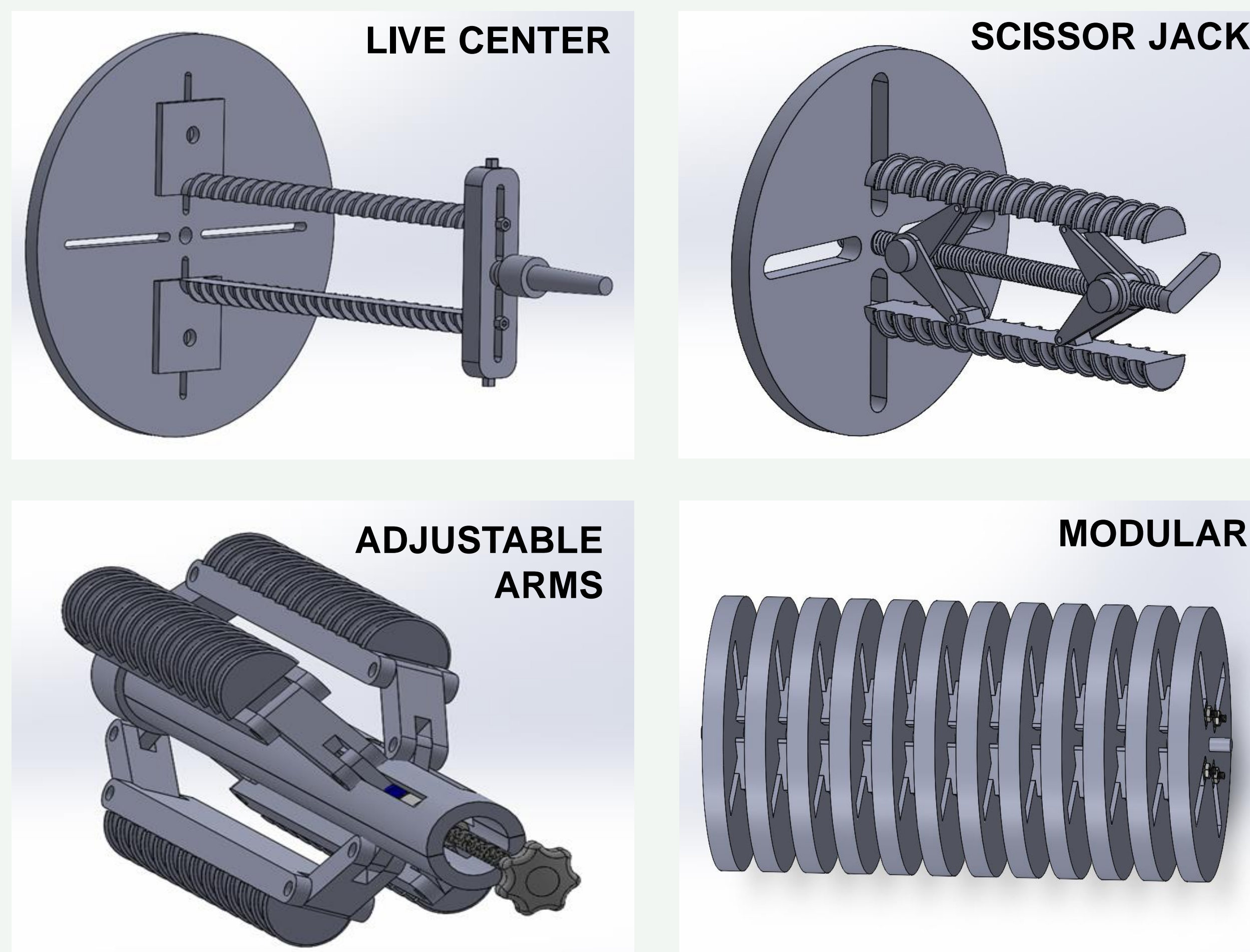


Main Stator



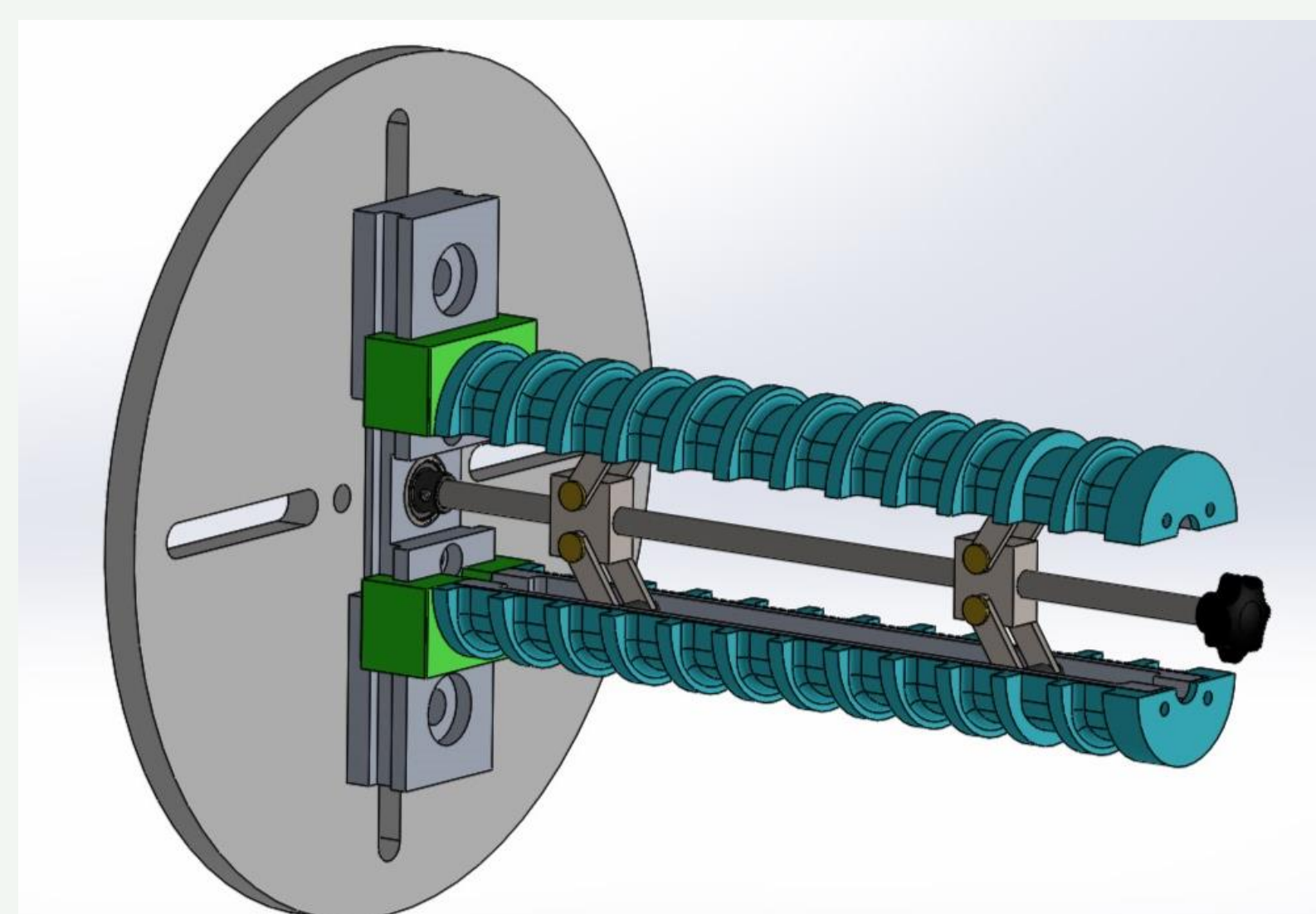
Broomfield 200 Series Winder

Initial Designs & Decision Matrix

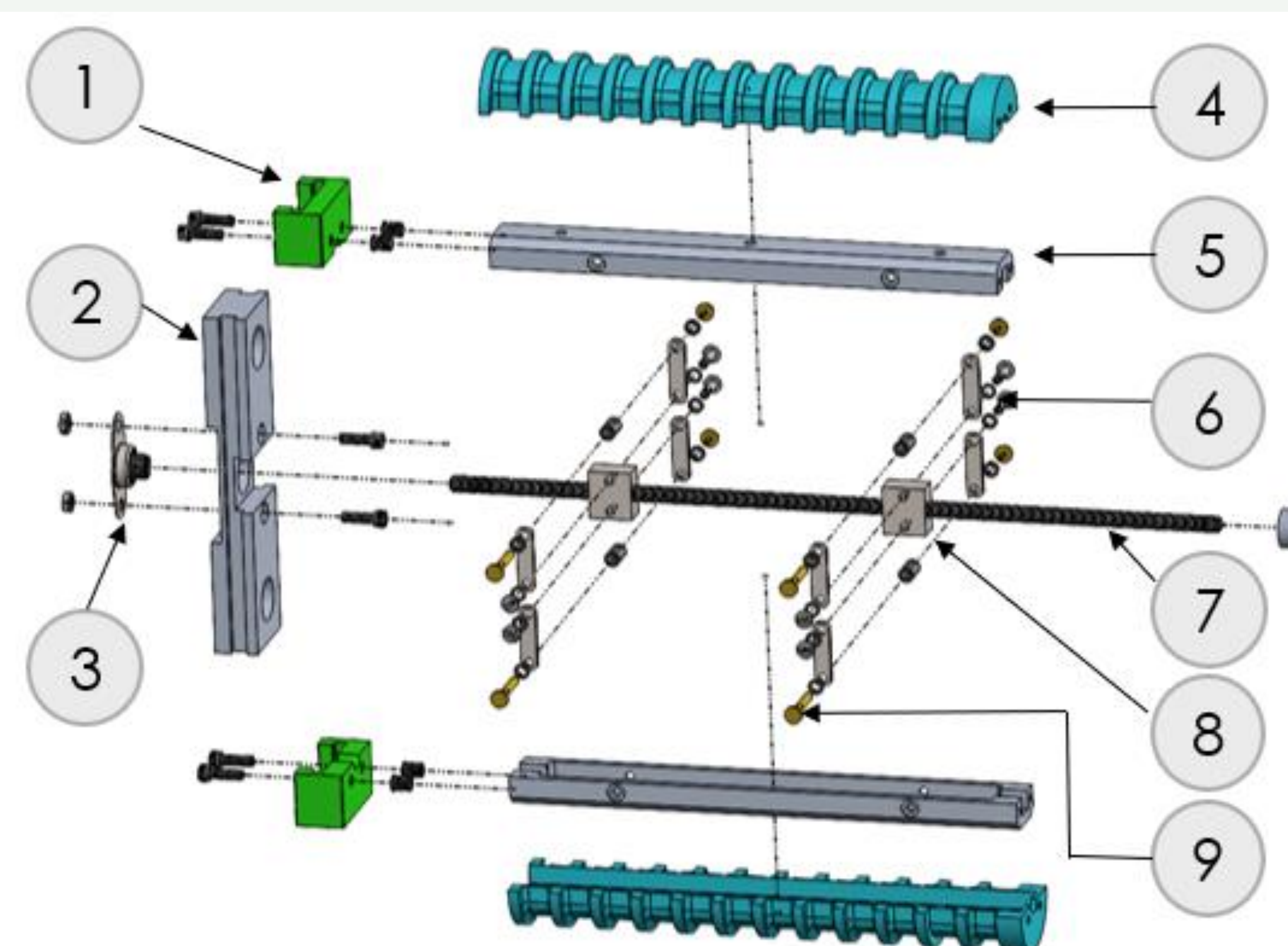


Design	Manufacturability	Repeatability (Coil Accuracy)	Adjustability (Size Range)	Ease of Use	Cost	Total
Live Center	15	12	6	2	3	38
Scissor Jack	10	6	3	5	2	26
Adjustable Arms	0	6	0	5	1	12
Modular	5	0	9	0	0	14

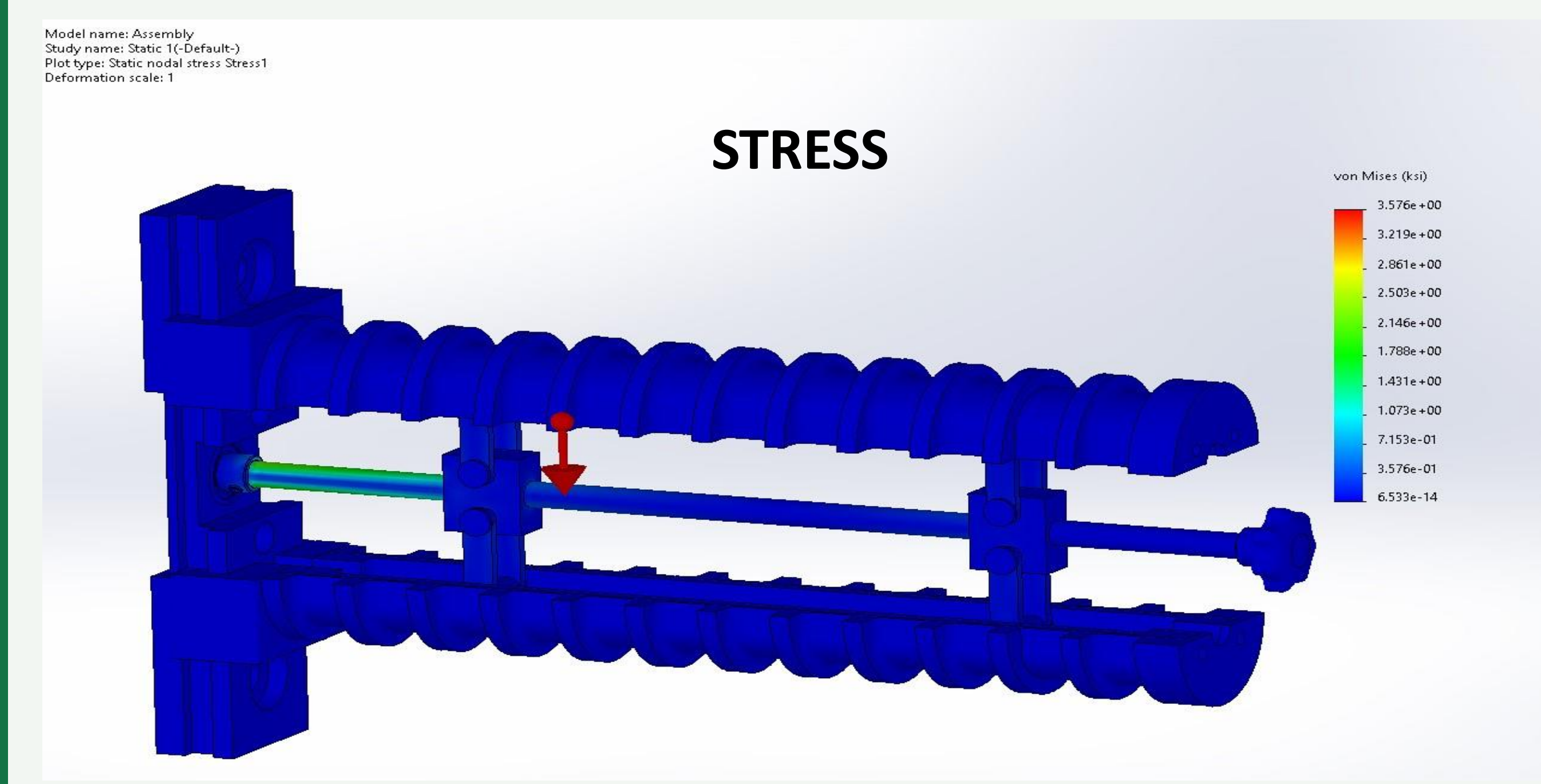
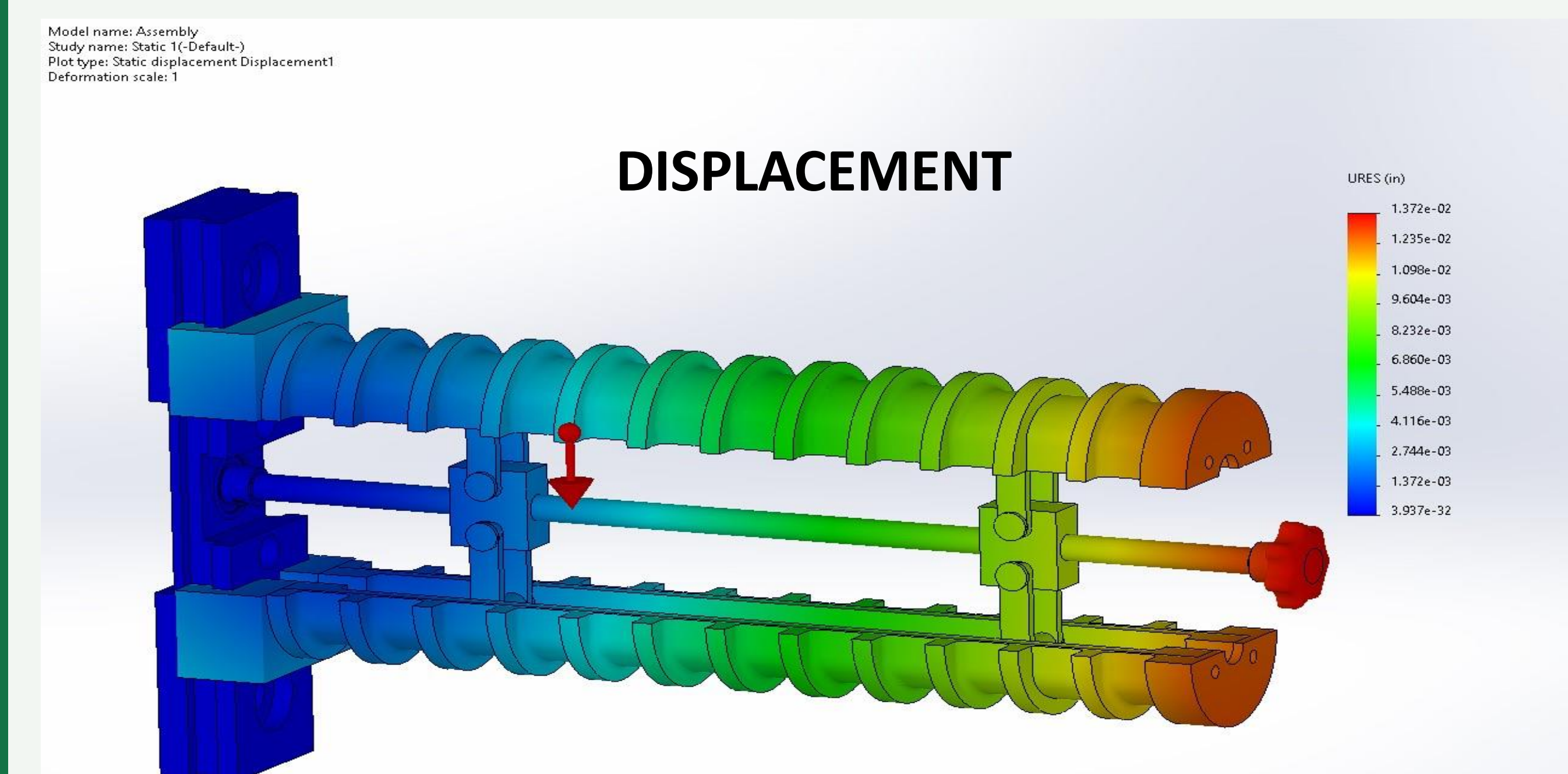
Final Design Selected



1	Slider
2	Bearing Block
3	Bearing
4	Arm Form
5	Mandrel Arm
6	Link
7	Lead Screw
8	Pivot Block
9	Pin



Design Analysis



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