

LFD / Tuning Summary

Geometry	LF Detuning (Hz) †	Tuning (Hz) ‡	Max Deformation (mm)	Peak Stress Intensity (MPa)	Sensitivity (Hz/mm)
LFD-0	-6500.0				
LFD-1	-8131.5				
LFD-2	-7163.5				
LFD-3	-7013.9				
LFD-4	-6701.3				
LFD-5	-7341.7				
LFD-6	-7338.0				
LFD-7	-6665.2				
LFD-8	-6403.1	608055.6	0.479	157	1269427
LFD-9	-6688.8				
LFD-10	-6539.3				
LFD-11	-7709.9	755826.5	0.480	178	1574639
LFD-12	-5008.4	668048.8	0.399	159	1674308
LFD-13	-7937.2	787447.4	0.567	222	1388796
LFD-14	-7767.6				
LFD-15 *	-4264.3	726247.2	1.059	368	685656
LFD-15-a *	-4182.8	660286.6	0.939	347	703173
LFD-16 *	-4951.7	839077.4	1.087	369	771849

* Tuner tab fixed.

† LFD simulation at 3.4 MV.

‡ Tuning is separate simulation with the simplified helium tank. Applied force on top and bottom is 4448N. Max deformation is measured from one side. Sensitivity is the tuning frequency shift divided by the max deformation at one side.

LFD / Tuning Summary

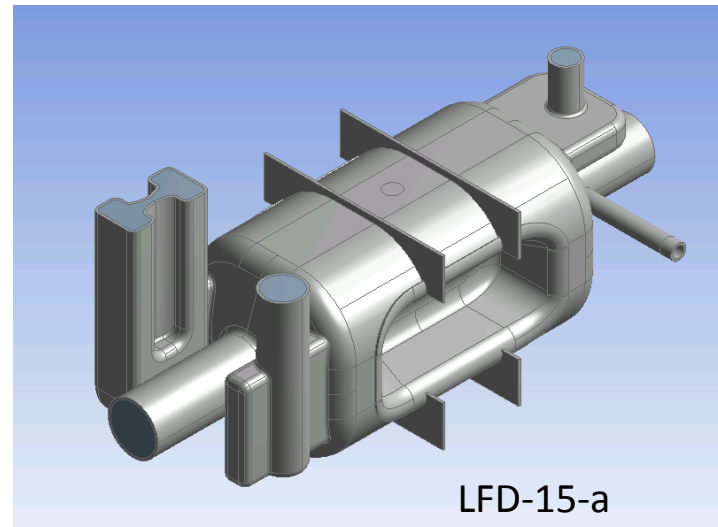
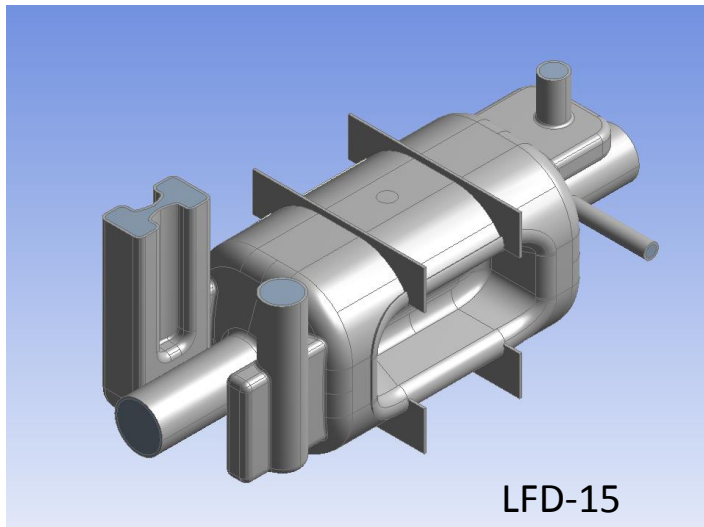
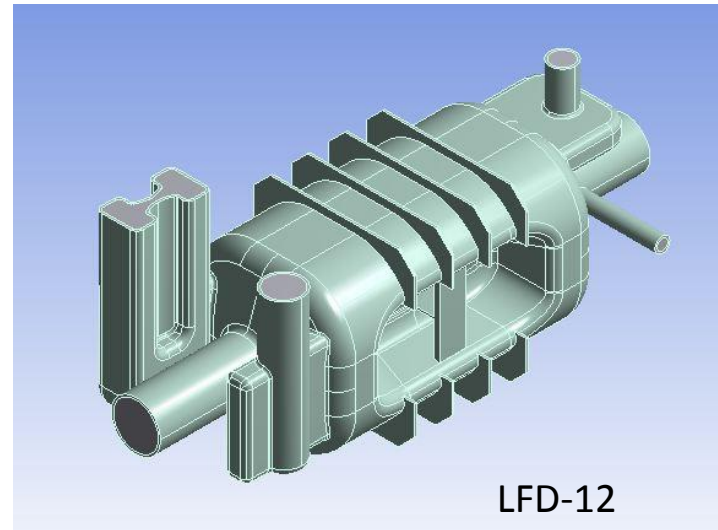
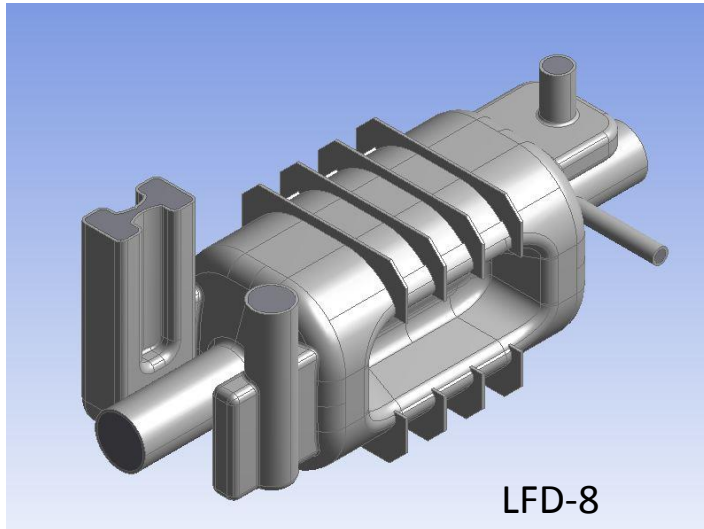
Geometry	LF Detuning (Hz) †	Tuning (Hz) ‡	Max Deformation (mm)	Peak Stress Intensity (MPa)	Sensitivity (Hz/mm)
LFD-15 *	-4264.3	726247.2	1.059	368	685656

- The geometry LFD-15 is showing the best optimization for LFD and Tuning sensitivity.

Geometry	Tuning force (N)	Tuning range (Hz)	Max Deformation (mm)	Peak Stress Intensity (MPa)	Sensitivity (Hz/mm)
LFD-15	4448	726247	1.059	368	685656
LFD-15	1500	244666	0.357	124	684936

- If the both direction (push or pull) is used the tuning range is twice of the range shown above. For example, tuning range is +/- 245 kHz for +/-1500 N.

Study Geometries



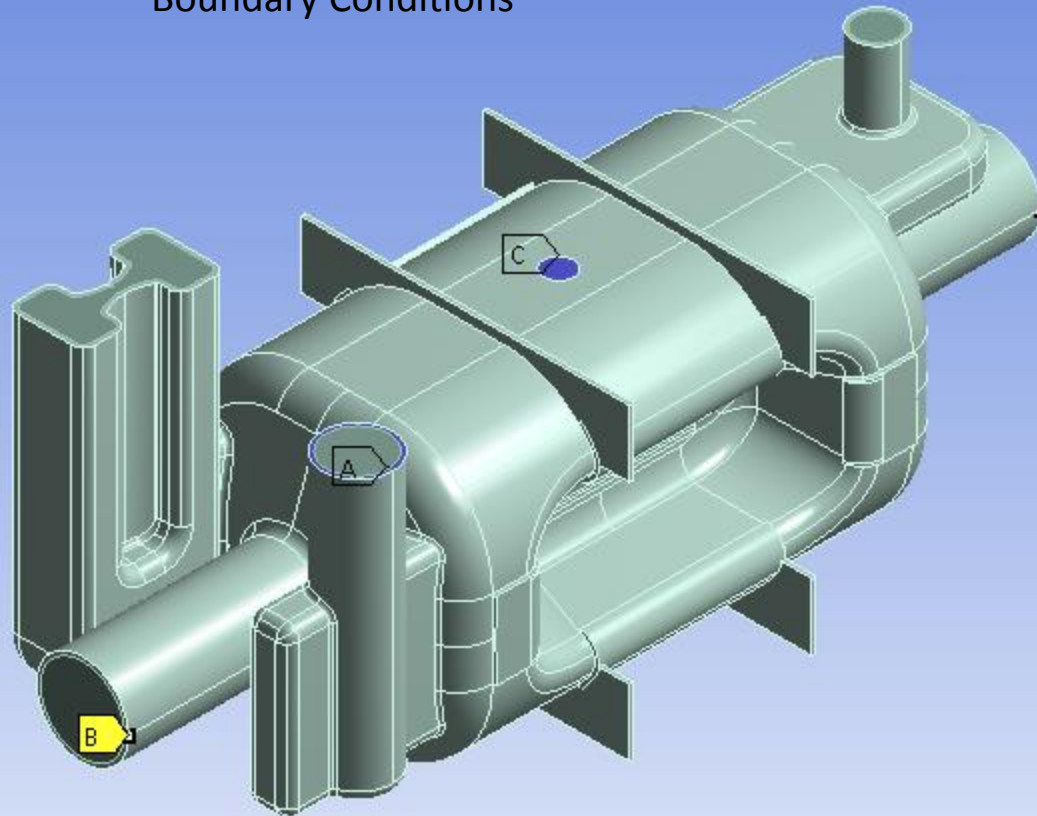
Lorentz Force Detuning

B: LFD-16

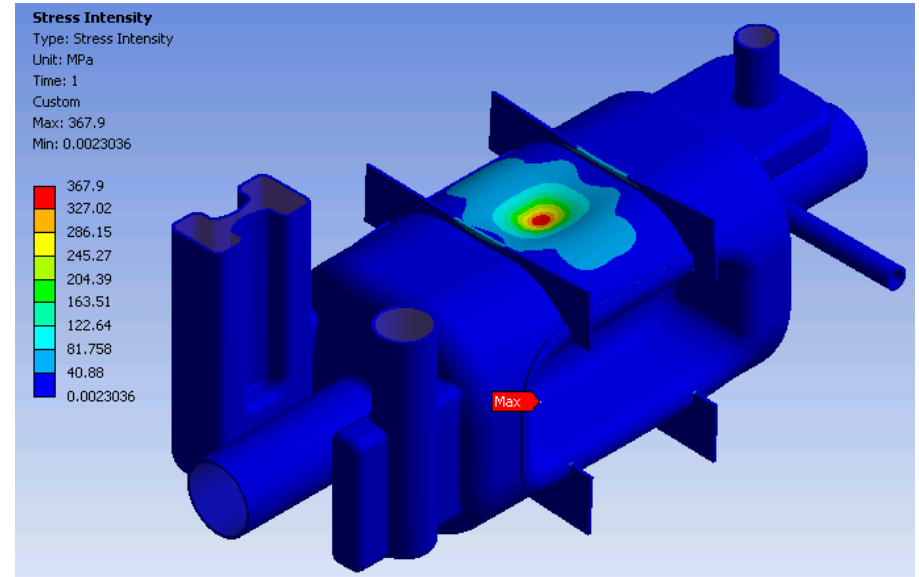
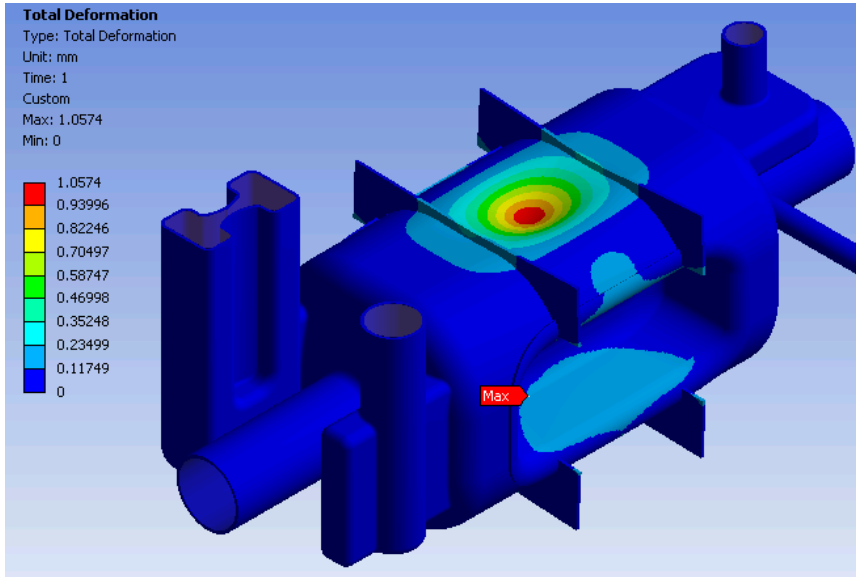
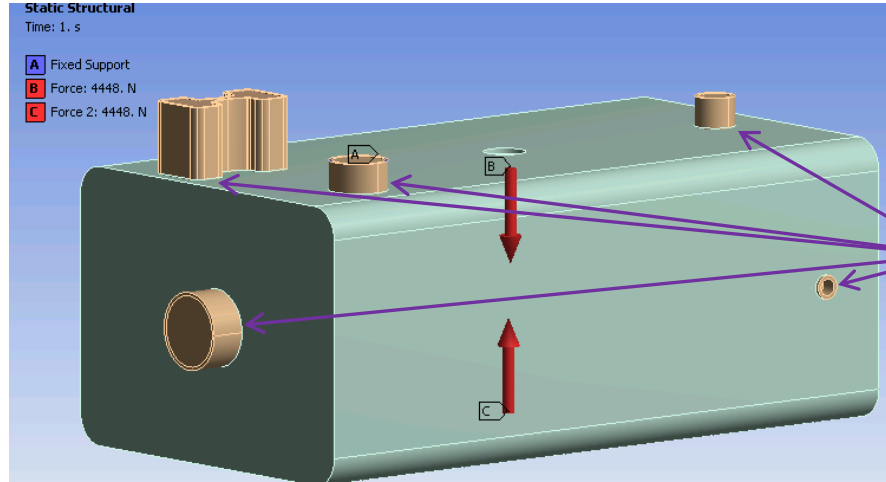
Static Structural
Time: 0.3028 s

- A** Fixed Support
- B** Displacement
- C** Fixed Support 2

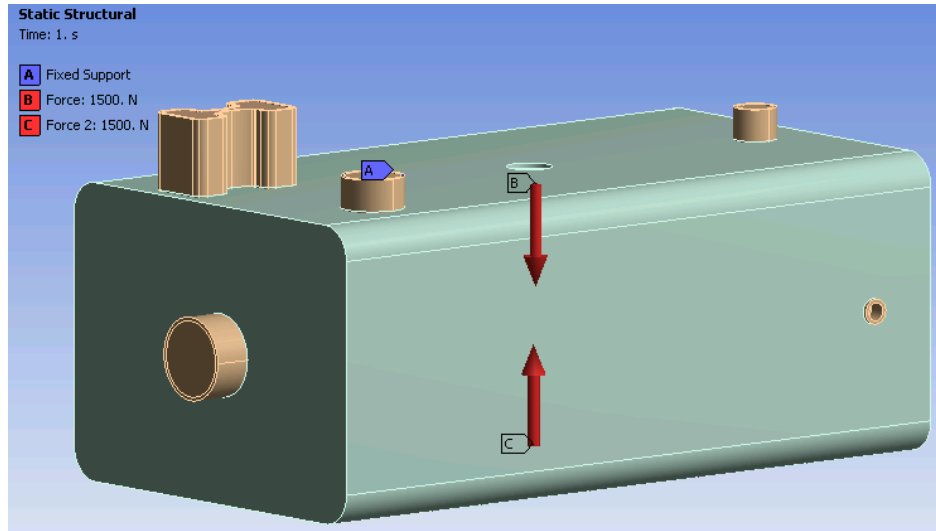
Boundary Conditions



Tuning LFD-15



Tuning LFD-15



Same
boundary
conditions

