

## Foam Linear Spring Stiffness

By Tom Irvine  
Email: tomirvine@aol.com

August 13, 2009

---

The following is an example where EAR Specialty Composite material was used as a foam lining in a battery box. The material was polyurethane foam.

The spring stiffness was needed for a finite element model.

Parameter	LS-1525 Foam	LS-1537 Foam
Load per area for 25% (lbf/in <sup>2</sup> )	7	7
Foam thickness (inch)	0.25	0.375
25% deflection (inch)	0.0625	0.09375
Force/volume (lbf/in <sup>3</sup> )	112	74.67
Assumed contact area (in <sup>2</sup> )	0.21	0.4
Pre-load Force per Spring (lbf)	1.5	2.8
Stiffness for contact area (lbf/in)	24	30

Note that the contact area was based on the finite element mesh density.