

Finite Element analysis on the stress behavior of Steel Spring and Metal Matrix composite based leaf spring

Table 2.1 Mechanical Characteristics of EN 45 Steel Spring

Properties	Young's Modulus, E (N/mm ²)	Poisons Ratio	Tensile Strength (MPa)	Density (kg/m ³)	Hardness (BHN)
Material - EN45	204000	0.30	621	7850	185

Table 4.1. Stress in Steel Leaf Spring at Different Loads

Load Applied (N)	Stress in Steel Spring (MPa)
1000	85.90
2000	122.46
3000	150.56
4000	174.58
5000	195.98
5400	204.01

Table 4.2: Stress in Composite Leaf Spring under Different Loads

Load Applied (N)	Stress in Composite Leaf Spring (MPa)
1000	51.75
2000	74.20
3000	91.93
4000	107.30
5000	120.91
5400	126.11

Table5.1: Result of stress

Load Applied (N)	Stress in Steel Spring (MPa)	Stress in Composite Spring (MPa)
1000	85.9	51.75
2000	122.40	74.20
3000	150.50	91.02
4000	174.58	107.30
5000	195.98	120.91
5400	204.01	126.11