

MSET – SPRING STIFFNESS

Purpose

Develop an understanding of spring stiffness and how an applied force results in a measurable stretching or elongation of the spring.

Springs

Springs are basic components used in engineering designs. A trampoline for example is fabricated with springs to support the weight and bouncing forces generated by a user.



Theory

The stiffness, or resistance to stretching of a spring depends on material composition, and spring geometry. Spring stiffness "K" can be determined by measuring the amount of deformation (stretch) "X" as a force "F" is applied.

$$F = K(X)$$

This relationship is also valid for springs loaded in compression

Setup



Results

A number of springs of various stiffness will be measured and compared published manufacturer values. The results will then be used to select a spring for a defined application problem

