

Manny  
44149 Dortmund  
Germany

mg@boondoggle-motors.com

## Tech Tip #5

### Comparing Spring Strength



Sometimes springs from different years of construction or from different projects accumulate in the workshop in one box.

If you want to build a set of 4 with the same strength from these springs, you face the difficulty of not being able to measure the spring strength with home remedies.

This method works with all types of compression springs, i.e. clutch springs, valve springs or fork springs.



#### Basics:

A spring with more windings but the same diameter and the same wire size is softer than the same spring with fewer windings.

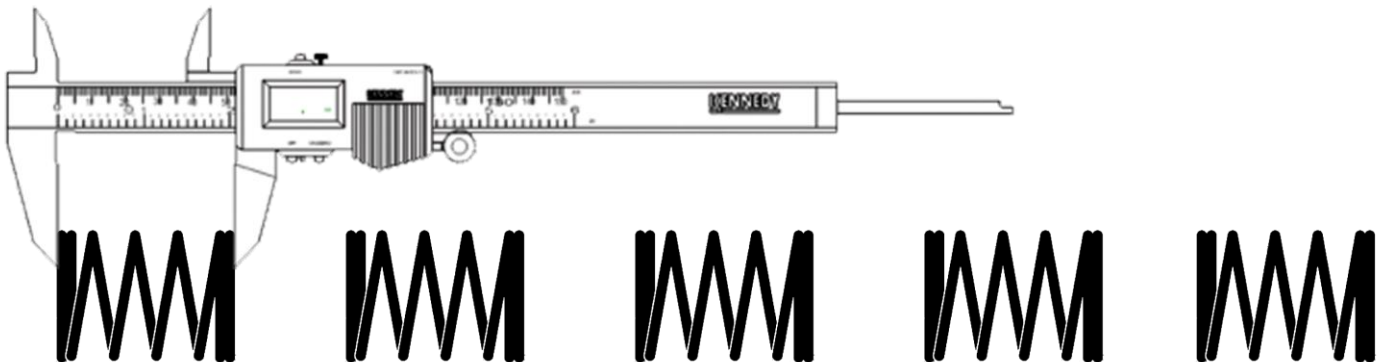
These springs have a linear pressure curve, so the pressure increases evenly when they are compressed.



Some springs combine narrow and wider windings and the pressure increases significantly the more you compress them. These type of springs are called progressive springs.

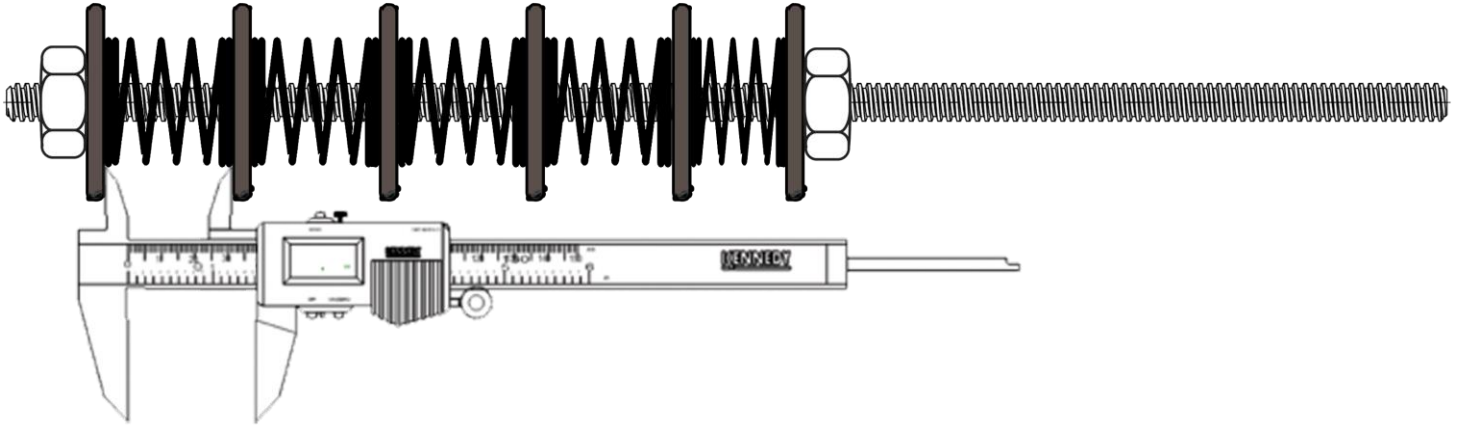
But how to compare your unsorted springs?

First you look for springs that could roughly fit in terms of diameter and length...



Then the first thing to do is to measure the length of all springs unloaded with a caliper and note the measured values. Marking the springs with colored dots facilitates the subsequent assignment.

Then you also need a threaded rod, two matching nuts and washers that are slightly larger than the diameter of the springs.



Then you thread the springs and the washers alternately on the threaded rod and start to tighten the nuts.

It makes sense to carry out and note down several measurements, i.e. 1/3 stretched, 1/2 and 3/4 ...

The interior space between the individual washers is then always measured. The springs that have the same distance between the washers with the same basic values and the same load automatically also have the same spring pressure.

In the example, the rightmost spring is too soft and compresses further.

With this method you don't know the exact value of the spring strength, but by comparing it you know that the springs have the same strength and this is what counts in most cases.

With progressive springs it is essential to carry out several steps of measurements because the increase in pressure is significantly greater the more you compress the springs.