
COIL SPRINGS

Many people believe that springs and shocks make up the heart of the suspension system. If this is true, then you better have the right pieces or victories will be very hard to find!

Spring rate is the amount of weight or force that is necessary to compress a spring one inch. If the spring is “linear” it means that if it takes 250 pounds to compress the spring one inch, you will need another 250 pounds to compress it another inch. Another 250 pounds of force will compress the spring a third inch. As you have 750 pounds to compress the spring 3 inches, the spring rate remains 250 pounds.

If the spring is “progressive” 250 pounds may compress it 1 inch, but another 250 pounds, may only compress the spring $\frac{3}{4}$ of an inch and another 250 pounds might compress the spring $\frac{1}{2}$ inch.

Spring rate is determined by three factors:

- The diameter of the wire used to construct the spring. The larger the diameter of the wire, the higher the spring rate
- The larger the diameter of the spring, the lower the final spring rate will be, when the same size wire is used.
- The final factor in the spring rate is the spacing (or pitch) between the coils, or the number of coils that make up the spring. The higher the number of coils, the lower the spring rate.

Knowing the actual spring rate of each spring is critical. Even though automated equipment is used in spring manufacturing, spring wire is not consistent. Due to this inconsistency, not all springs will come out exact.

Other things that can alter the spring rate include:

- Heavy or extended use which can lead to collapsing.
- Damage from impact with the wall or another competitor.

Longacre Racing Products offers a complete line of spring testing equipment.

Check out our newest piece, the Bump Stop Spring Tester, part # 73501