

A spring is a device consisting of an elastic, but largely rigid material (typically metal) bent or molded into a form (especially a coil) that can return into shape after being compressed or extended. Springs can store energy when compressed. In everyday use, the term most often refers to coil springs, but there are many different spring designs. Modern springs are typically manufactured from spring steel. Springs are mechanical devices that pull, push, support, lift, or protect, and some of the most commonly used mechanical assemblies incorporate springs in their design. This article will cover different types of springs, their use, and how each type operates in specific applications. The letter k represents the “spring constant,” a number which essentially tells us how “stiff” a spring is. If you have a large value of k , that means more force is required to stretch it a certain length than you would need to stretch a less stiff spring the same length. In physics, Hooke's law is an empirical law which states that the force (F) needed to extend or compress a spring by some distance (x) scales linearly with respect to that distance—that is, $F_s = kx$, where k is a constant factor characteristic of the spring (i.e., its stiffness), and x is small compared to the total possible deformation of the spring. The law is named after 17th century British physicist Robert Hooke. He first stated the law in 1676 as a Latin anagram. He published the solution of his anagram in 1678 as: *ut tensio, sic vis* ("as the extension, so the force" or "the extension is proportional to the force"). k is known as the spring constant or stiffness constant. Unit of spring constant is N/m