How to Measure Springs

GARDNER SPRING INC.
A Vulcan Spring company.

In order to identify an existing spring, either to compare to see if it matches a stock item, or to obtain the information necessary to quote the part as a special, certain dimensions are essential. In addition to the type of spring (see below), it is important to determine what material the customer needs.

The most common spring materials are:

Carbon Steel
MBHD (carbon)
Music Wire (for precision parts)
1074/1075 (for disc springs)

Stainless Steel
300 Series (301/302/304/313)
17-7 PH

These are the most common types of springs, and the measurements/ specifications needed to match a customer's part with a stock item. These dimensions are also necessary for us to make a custom part if a stock size is not available.

Note that we can make a part from a physical sample, but sometimes the customer may not be willing to send it, or it may be broken. While we like to have the sample for a custom order, we can accurately manufacture the spring if we have as much dimensional data as possible.

TYPES OF SPRINGS & RELEVANT DIMENTIONS:

Coil Springs:

Utility Extension Springs

Outside Diameter (O.D.)
Wire Diameter (W.D.)
Overall Length (O.A.L.) (Measured Outside the Hooks/Loops)Spring Rate (if known) in lbs/in or N/mm

Precision Extension Springs

Outside Diameter (O.D.)
Wire Diameter (W.D.)
Free Length (F.L.) (Measured Inside the Hooks/Loops)
Spring Rate (if known) in lbs/in or N/mm

Compression Springs

Outside Diameter (O.D.)
Inside Diameter (I.D.) (needed if spring goes over a shaft)
Wire Diameter (W.D.)
Free Length (F.L.)
Number of Coils (Active or Total)
Type of Ends (Open, Closed Only, or Closed & Ground)
Spring Rate (if known) in lbs/in or N/mm

Torsion Springs

Outside Diameter (O.D.)
Inside Diameter (I.D.) (needed if spring goes over a shaft)
Wire Diameter (W.D.)
Body Length
Leg Length
Number of Coils
Degree of Angle
Spring Rate (if known) in lbs/in or N/mm

Disc Springs:

Belleville/Conical Disc Springs

Outside Diameter (O.D.)
Inside Diameter (I.D.)
Thickness (t)
Overall (Free) Height (H)
Desired Load at Working Height (if known) in lbs or N

Wave Springs

Outside Diameter (O.D.)
Inside Diameter (I.D.)
Thickness (t)
Overall (Free) Height (H)
Number of Waves (Usually 3)
Desired Load at Working Height (if known) in lbs or N

Curved Springs

Outside Diameter (O.D.)
Inside Diameter (I.D.)
Thickness (t)
Overall (Free) Height (H)
Desired Load at Working Height (if known) in lbs or N

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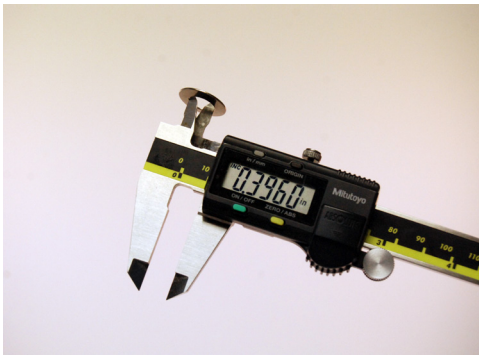
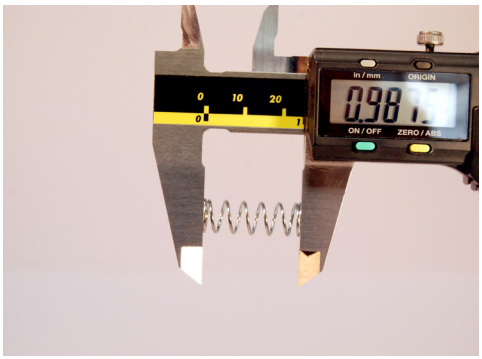
HOW TO MEASURE SPRINGS

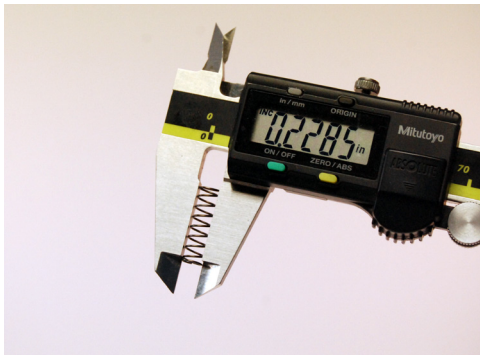


Belleville Spring
Inside Diameter (ID)

Belleville Spring
Bellville Outside Diameter (OD)



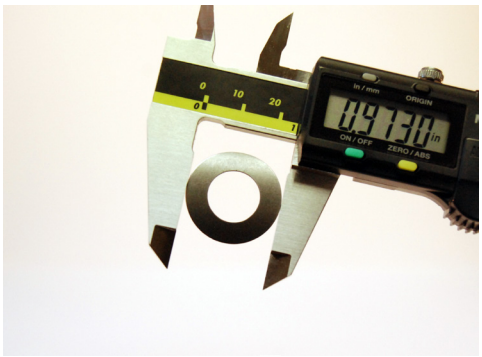
Compression Spring
Free Length



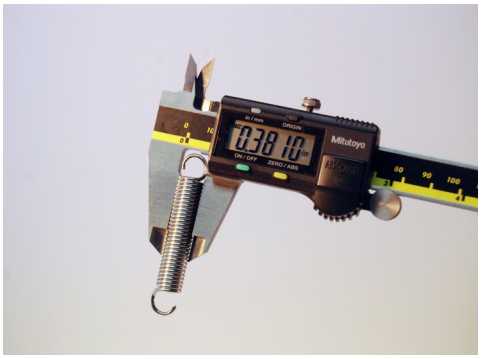
Compression Spring
Outside Diameter (OD)

Compression Spring
Wire Diameter (WD)

Curved Spring
Free Height



Curved Spring
Outside Diameter (OD)



Extension Spring
Outside Diameter (OD)

Torsion Spring
Body Length

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