

ANTI-VIBRATION & SPRINGS

Springs and Spring Assemblies

SR, SL & BA

T
E
C
H
N
I
C
A
L

Fatigue Life

The fatigue life has a direct effect on the size of the spring and the maximum torque output available in the least space. A comparison of various chart values illustrates the effect fatigue requirements have on the size of the spring. For any application, the required number of cycles or reversals should be estimated for the life of the equipment or a replacement schedule.

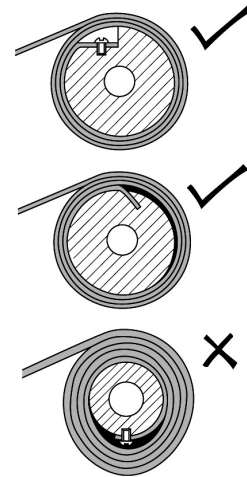
The fatigue life of a spring can be defined as either a full or partial extraction and retraction of the spring i.e. the spring can be exercised over its whole length and achieve the average life expectation. However, if it is exercised over any one section of the spring repeatedly, then that section can be expected to fatigue when the total number of cycles approaches the life predicted for the spring.

Fatigue life is not time dependant under normal operating circumstances, it is solely dependant on the number of operations. However pollutants even in low concentrations can have the effect of shortening the fatigue life through corrosion or chemical attack. Please refer to our Technical Department for further details.

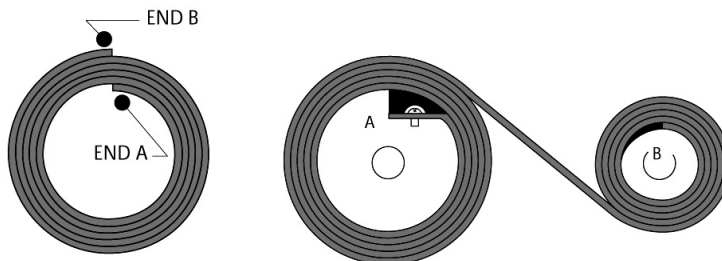
Mounting Details

A spring motor consists of the following, torque output drum, spring and a storage drum. The storage drum is the smaller of the two and is of a specified diameter. The spring will grip the storage drum by its own inherent gripping action.

The torque output drum is the larger of the two and is also of a specified diameter. The spring must be attached to the drum in such a way that succeeding turns of the spring will not be raised by any protrusions, (see diagrams). Both drums are usually supplied by the user according to the requirements of his own application.



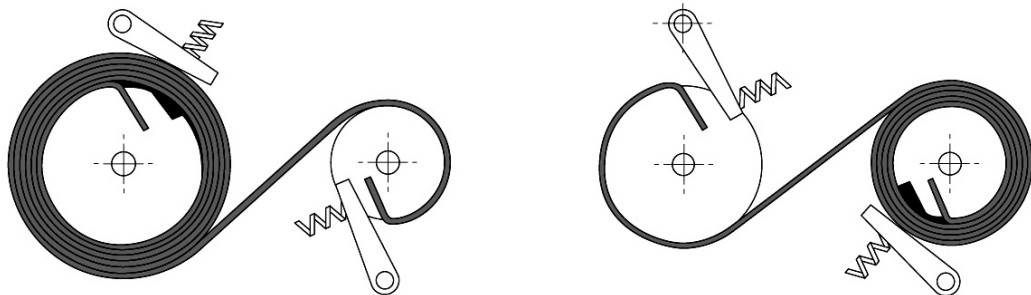
How the spring is assembled on drum (not supplied)



Outer end of spring to be first wrap on storage drum. The free end is then fastened to the torque output drum so that its curvature will be reversed.

Working Turns

The principal limitation on the total number of rotations of a spring motor is the space requirement of the amount of material involved. Working turns are quoted for the standard range (see spring charts).



Fully Wound Position

Unwound Position

ANTI-VIBRATION & SPRINGS

Springs and Spring Assemblies

SR, SL & BA

Speed and Acceleration

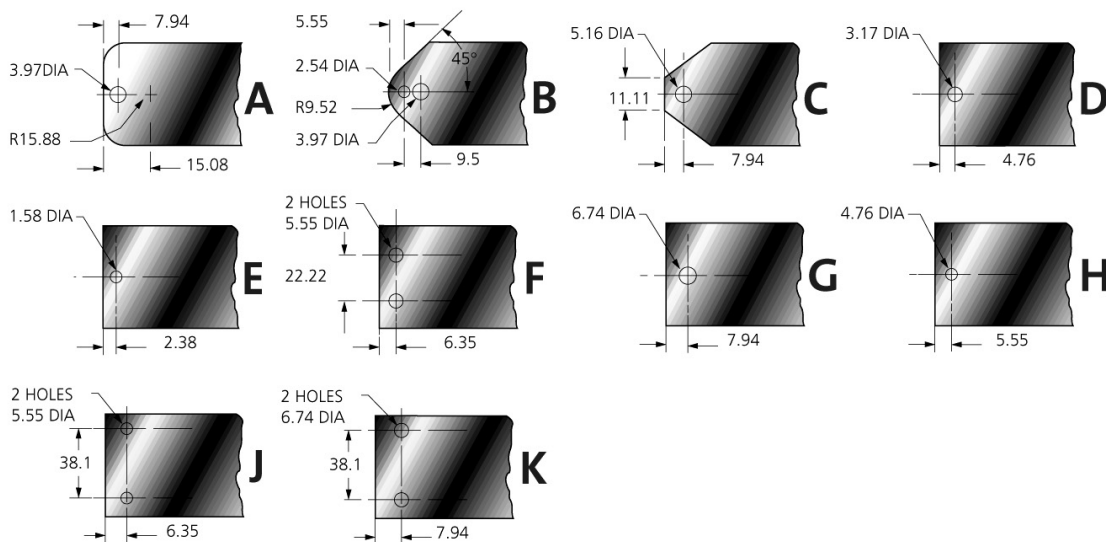
Free release of a charged spring motor, or any condition approaching free release, may permit the torque drum to throw off material faster than the storage drum can coil up. No such limitation exists in the pull-out or charging part of the cycle, except for sudden decelerations.

Wherever high-speed operation, sudden stopping or release are predictable service conditions, experimental models should be employed to verify performance.

Stop Mechanisms

If the driven mechanism does not have its own limits, some stops or restraints should be included in the design of the spring motor assembly to prevent over-travel of the spring. In some applications the travel of the motor assembly must be limited itself. The illustration shows a double stop mechanism with the motor in both the wound and unwound positions. More often an automatic stop is required only at the end of the power stroke, in which case the device shown would be used only on the output drum.

Motor Spring Ends



J
A
C
I
N
H
C
E
T