

How to Select the Proper Diameter and Duty of a Coiled Spring Pin

by Christie L. Jones, VP - Director of Marketing
SPIROL International Corporation

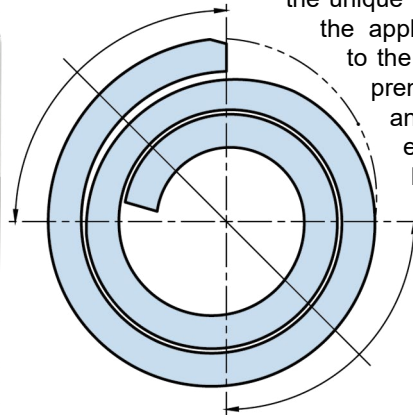
What is a Coiled Pin?

SPIROL invented the Coiled Spring Pin in 1948. This engineered product was specifically designed to address deficiencies associated with conventional methods of fastening such as threaded fasteners, rivets and other types of pins subject to lateral forces. Easily recognized by its unique 2¼ coil cross section, Coiled Pins are retained by radial tension when installed into the host component, and they are the only pins with uniform strength and flexibility after insertion.

Truly an “engineered-fastener”, the Coiled Pin is available in three “duties” to enable the designer to choose the optimum combination of strength, flexibility and diameter to suit different host materials and application requirements. The Coiled Pin distributes static and dynamic loads equally throughout its cross section without a specific point of stress concentration. Further, its flexibility and shear strength are unaffected by the direction of the applied load, and therefore, the pin does not require orientation in the hole during assembly to maximize performance.

In dynamic assemblies, impact loading and wear often lead to failure. Coiled Pins are designed to remain flexible after installation and are an active component within the assembly. The Coiled Pin’s ability to dampen shock/impact loads and vibration prevents hole damage and ultimately prolongs the useful life of an assembly.

The Coiled Pin was designed with assembly in mind. Compared to other pins, their square ends, concentric chamfers and lower insertion forces make them ideal for automated assembly systems. The features of the Coiled Spring Pin make it the industry standard for applications where product quality and total manufacturing cost are critical considerations.



Light
Duty



Standard
Duty



Heavy
Duty

SPIROL® Coiled Spring Pins are available in three “duties” to enable the designer to choose the optimum combination of strength, flexibility and diameter to suit different host materials and application requirements.

Three Duties

Flexibility, strength, and diameter must be in the proper relationship to each other and to the host material to maximize the unique features of the Coiled Pin. A pin too stiff for the applied load would not flex, causing damage to the hole. A pin too flexible would be subject to premature fatigue. Essentially, balanced strength and flexibility must be combined with a large enough pin diameter to withstand the applied loads without damaging the hole. That is why Coiled Pins are designed in three duties; to provide a variety of combinations of strength, flexibility and diameter to suit different host materials and applications.

Choosing the Proper Pin Diameter and Duty

It is important to start with the load to which the pin will be subjected. Then evaluate the material of the host to determine the duty of the Coiled Pin. The pin diameter to transmit this load in the proper duty can then be determined from the shear strength tables published in the product catalog taking into consideration these further guidelines:

- Wherever space permits, use standard duty pins. These pins have the optimum combination of strength and flexibility for use in nonferrous and mild steel components. They are also recommended in hardened components because of their greater shock absorbing qualities.
- Heavy duty pins should be used in hardened materials where space or design limitations rule out a larger diameter standard duty pin.
- Light duty pins are recommended for soft, brittle or thin materials and where holes are close to an edge. In situations not subjected to significant loads, light duty pins are often used because of easy installation resulting from lower insertion force.

Although this article offers general design guidelines, it is recommended that Application Engineers who specialize in fastening and joining be consulted to ensure the optimum Coiled Pin is specified for each application.

For technical assistance, please visit:

ca.**SPIROL**.com/contact-us



**Innovative Fastening Solutions.
Lower Assembly Costs.**



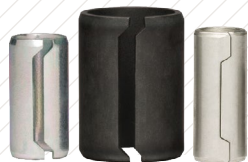
Coiled Spring Pins



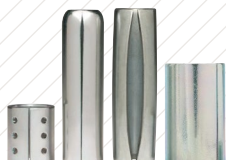
Slotted Spring Pins



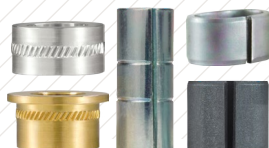
Solid Pins



**Alignment Dowels /
Bushings**



**Spacers & Rolled
Tubular Components**



**Compression
Limiters**



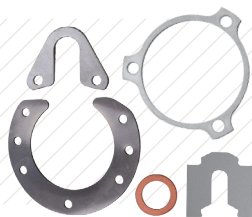
**Threaded Inserts
for Plastics**



Disc Springs



**Machined Aerospace
Components**



**Precision Shims,
Washers & Metal Gaskets**



Laminated Shims



**Parts Feeding
Technology**



**Pin Installation
Technology**



**Insert Installation
Technology**



**Compression Limiter
Installation Technology**

Please refer to www.SPIROL.ca for current specifications and standard product offerings.

SPIROL offers complimentary Application Engineering support! We will assist on new designs as well as help resolve issues, and recommend cost savings on existing designs. Let us help by visiting **Application Engineering Services** on SPIROL.ca.

Technical Centres

Americas **SPIROL Canada**
Windsor, Ontario
+1 519 974 3334
info-ca@spirol.com

SPIROL International Corporation
Connecticut, USA
+1 860 774 8571
info@spirol.com

SPIROL Shim Division
Ohio, USA
+1 330 920 3655
info@spirol.com

SPIROL Mexico
Apodaca, Nuevo León
+52 81 8385 4390
info-mx@spirol.com

SPIROL Brazil
Indaiatuba, São Paulo
+55 19 3936 2701
info-br@spirol.com

Europe **SPIROL United Kingdom**
Corby, Northants, England
+44 (0) 1536 444800
info-uk@spirol.com

SPIROL Ford
South Shields, Tyne & Wear, England
+44 (0) 1914 540141
contactus@ford-engineering.com

SPIROL France
Saint-Léonard
+33 (0) 3 26 36 31 42
info-fr@spirol.com

SPIROL Germany
Münich
+49 (0) 89 4 111 905 71
info-de@spirol.com

SPIROL Spain
Barcelona
+34 932 71 64 28
info-es@spirol.com

SPIROL Czech Republic
Prague
+420 226 218 935
info-cz@spirol.com

SPIROL Poland
Warsaw
+48 510 039 345
info-pl@spirol.com

Asia Pacific **SPIROL China**
Shanghai
+86 (0) 21 5046-1451
info-cn@spirol.com

SPIROL Malaysia
Iskandar Puteri, Johor
+60 77 063 960
info-my@spirol.com

SPIROL Korea
Seoul, South Korea
+82 (0) 10 9429 1451
info-kr@spirol.com

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