

How To Properly Mate Compression Limiters and Threaded Inserts in Plastic Assemblies

by Christie L. Jones, Market Development Manager
SPIROL International Corporation, U.S.A.



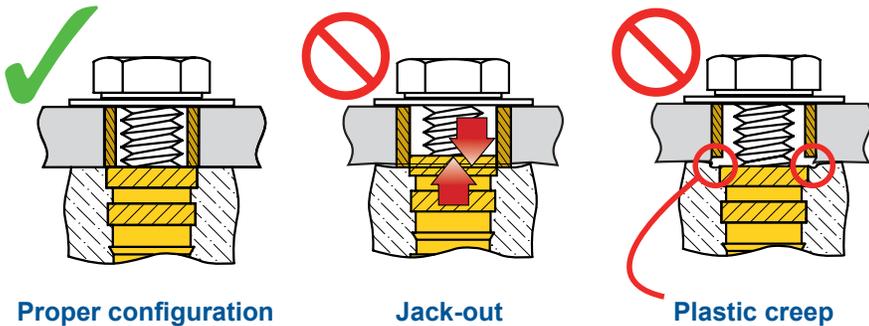
In applications where the mating component is also plastic, a Compression Limiter is necessary to avoid the creep or stress relaxation in the mating component from reducing the frictional load in the threaded joint.

Similar to Threaded Inserts, Compression Limiters are used to ensure bolted joint integrity in plastic assemblies. As the bolt is tightened to achieve the required friction between threads, the plastic is compressed. The Compression Limiter absorbs the force generated during tightening of the bolt, and isolates the plastic from excessive compressive loads. Without the Compression Limiter, plastic will creep resulting in the loosening and eventual failure of the joint. The Compression Limiter ensures that the joint remains intact throughout the life of the product.

In order for the Compression Limiter to work properly, it should abut the Insert so that the Insert, and not the plastic, carries the load. The ID of the Compression Limiter in the mating component must be larger than the outside diameter of the assembly screw, but smaller than the pilot or face diameter of the Insert to avoid "jack-out".

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SPIROL offers three different styles of standard Compression Limiters enabling the most cost effective component to be chosen for each particular assembly depending on performance requirements and installation method.



Proper configuration

Jack-out

Plastic creep



Series CL200 and CL350



Series CL400 and CL460



Series CL500



Series CL600 and CL601



Series CL800 and CL801



SPIROL® Series 16, 20, 30 and 51 Inserts
for Plastic Assemblies



SPIROL® Series 14, 19, 60 and 61 Inserts
for Plastic Assemblies

Headed Inserts – **SPIROL** Series 16, 20, 30 and 51 are designed to increase the contact surface for the Compression Limiters. In addition, **SPIROL** Series 14, 19, 60 and 61 generally have adequate surface area. In any event, at the design stage proper contact needs to be evaluated.

If the pilot diameter of the Insert being used is too small for the inside diameter of the Compression Limiter, then a special Compression Limiter with reduced clearance between the assembly screw may resolve the problem. This of course also reduces permissible misalignment.

If the surface area of the Insert is inadequate for proper contact with the Compression Limiter, then the only solution is using a plastic in the mating component that has good anti-creep characteristics and using a Compression Limiter with maximum wall thickness for better distribution of the load. Jack-out in these situations will be a concern and needs to be addressed with avoiding over-torquing the assembly screw.



SPIROL offers free samples and engineering support.

SPIROL Application Engineers will review your application needs and work with your design team to recommend the best solution. One way to start the process with our **Optimal Application Engineering** portal at www.SPIROL.com.

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ISO 9001 Certified

e-mail: info@spirol.com

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Technical Centers

Americas

SPIROL International Corporation
30 Rock Avenue
Danielson, Connecticut 06239 U.S.A.
Tel. +1 860 774 8571
Fax. +1 860 774 2048

SPIROL Shim Division
321 Remington Road
Stow, Ohio 44224 U.S.A.
Tel. +1 330 920 3655
Fax. +1 330 920 3659

SPIROL Canada
3103 St. Etienne Boulevard
Windsor, Ontario N8W 5B1 Canada
Tel. +1 519 974 3334
Fax. +1 519 974 6550

SPIROL Mexico
Carretera a Laredo KM 16.5 Interior E
Col. Moisés Saenz
Apodaca, N.L. 66613 Mexico
Tel. +52 81 8385 4390
Fax. +52 81 8385 4391

SPIROL Brazil
Rua Mafalda Barnabé Soliane, 134
Comercial Vitória Martini, Distrito Industrial
CEP 13347-610, Indaiatuba, SP, Brazil
Tel. +55 19 3936 2701
Fax. +55 19 3936 7121

Europe

SPIROL France
Cité de l'Automobile ZAC Croix Blandin
18 Rue Léna Bernstein
51100 Reims, France
Tel. +33 3 26 36 31 42
Fax. +33 3 26 09 19 76

SPIROL United Kingdom
17 Princewood Road
Corby, Northants
NN17 4ET United Kingdom
Tel. +44 1536 444800
Fax. +44 1536 203415

SPIROL Germany
Ottostr. 4
80333 Munich, Germany
Tel. +49 89 4 111 905 71
Fax. +49 89 4 111 905 72

SPIROL Spain
08940 Cornellà de Llobregat
Barcelona, Spain
Tel. +34 93 193 05 32
Fax. +34 93 193 25 43

SPIROL Czech Republic
Sokola Tůmy 743/16
Ostrava-Mariánské Hory 70900
Czech Republic
Tel/Fax. +420 417 537 979

SPIROL Poland
ul. M. Skłodowskiej-Curie 7E / 2
56-400, Oleśnica, Poland
Tel. +48 71 399 44 55

Asia Pacific

SPIROL Asia Headquarters
1st Floor, Building 22, Plot D9, District D
No. 122 HeDan Road
Wai Gao Qiao Free Trade Zone
Shanghai, China 200131
Tel. +86 21 5046 1451
Fax. +86 21 5046 1540

SPIROL Korea
160-5 Seokchon-Dong
Songpa-gu, Seoul, 138-844, Korea
Tel. +86 (0) 21 5046-1451
Fax. +86 (0) 21 5046-1540

e-mail: info@spirol.com

SPIROL.com