

THE FUNCTION OF A COMPRESSION LIMITER

Compression Limiters are designed to protect the plastic components of an assembly from the compressive loads generated by the tightening of bolts.

The objective is to keep the compressive stresses below the elastic limit of the plastic. In practice, as the bolt is tightened the plastic compresses and the stress in the plastic increases until the head of the bolt, or washer if one is used, comes into contact with the Compression Limiter. Thereafter, the Compression Limiter and plastic will compress at the same rate. The Compression Limiter will absorb additional clamping loads without further significant compression and increased stress in the plastic material.

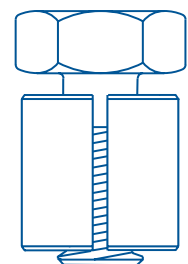
A properly designed bolted joint must meet the following criteria:

- The head of the bolt, or washer if one is used, should always seat against the Compression Limiter under load. This will prevent deterioration of the bolted joint resulting from diminished clamping load due to plastic creep.
- The compression in the plastic component should not exceed its elastic limit, when compressed to seat the bolt against the Compression Limiter in the worst-case tolerance condition of the assembly.
- The proof load of the Compression Limiter should be equal to or greater than the proof load of the bolt to assure that the Compression Limiter will not yield prior to the bolt under excessive clamping loads.
- The clearance between the maximum bolt diameter and the minimum installed inside diameter of the Compression Limiter should be sufficient to compensate for normal misalignment.

Standard **SPIROL® COMPRESSION LIMITERS** meet these criteria.

The clearance between the bolt and the inside diameter of the installed Compression Limiters is adequate to meet normal misalignment. The length and length tolerance is application dependent. The standard tolerance is sufficient to meet most needs, but verification is recommended. **SPIROL** Engineering is available to assist in this process. If it is determined that a special Compression Limiter is required, a documented recommendation will be provided.

The SPIROL range of Compression Limiters includes the molded-in, split seam and solid knurled designs. The molded-in type is produced from low carbon steel and is equipped with radial grooves to provide maximum retention. The split seam type is produced from carbon steel in heat-treated and non-heat-treated versions. The solid knurled type is produced from brass. Since these Compression Limiters are designed to meet specified proof loads, the dimensional specifications are different. The split seam design has a lead to facilitate insertion. The solid design has a pilot, allowing it to stand freely in the hole prior to complete installation.



SPIROL®

Innovative fastening solutions.
Lower assembly costs.



Challenge Us!

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 is to visit our **Optimal Application Engineering** portal at www.SPIROL.com.

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