The Function of a Compression Limiter

The primary function of a Compression Limiter is to provide and maintain joint integrity of a plastic assembly. Compression Limiters are designed to protect the plastic components of an assembly from the compressive loads generated by the tightening of bolts, thereby assuring continued integrity of the bolted connection.

In practice, the Compression Limiter should be slightly shorter than the thickness of the plastic host. 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, although greatly reduced, rate. The Compression Limiter will absorb additional clamping loads without further significant compression or 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 both the plastic host and the Compression Limiter under load. This will prevent deterioration of the bolted joint resulting from diminished clamping load due to plastic creep.
- The rated 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 mating component that the Compression Limiter seats against should be strong enough to withstand the localized compressive stresses generated by the clamping force.
- 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.

Application Engineering Support

It is imperative that the proper Compression Limiter be designed into each application based on the specific requirements for that assembly, and that the plastic host be designed appropriately to ensure that bolted joint integrity is maintained throughout the life of the assembly.

Each application has unique considerations such as:

- The specific plastic type in which the Compression Limiter will be used
- Columnar strength requirements
- Corrosion resistance requirements
- Temperature requirements
- Installation method

This catalog provides useful information regarding design guidelines and specifications for assemblies that use Compression Limiters. In addition, SPIROL’s Application Engineers will partner with your design team to determine the most appropriate Compression Limiter for your specific application.

Contact SPIROL for design assistance:
www.spirol.com/s/cmpldesign/
Innovative fastening solutions. Lower assembly costs.

SPIROL Application Engineers will review your application needs and work with you to recommend the optimum solution. One way to start the process is to visit our Optimal Application Engineering portal at SPIROL.com.

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

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