

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 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.



It is essential for the Compression Limiter to be in contact with the Insert and the condition described in the first paragraph on page 6 needs to be avoided. The Insert – and not the plastic – must carry the load. A jack-out condition is not acceptable.

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.



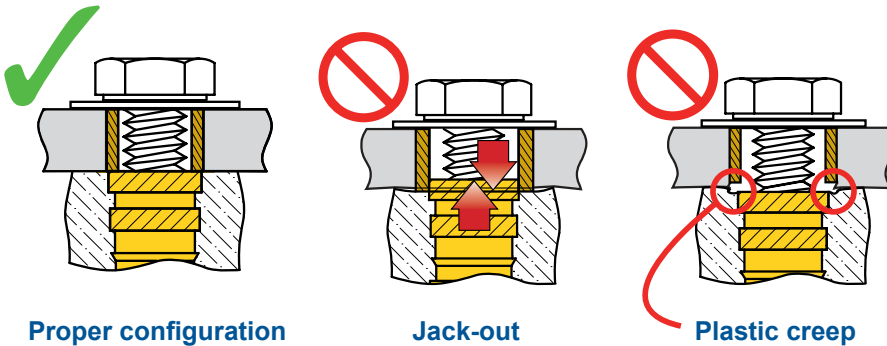
Series CL101 and CL111



Series CL300 and CL350



Series CL500



Proper configuration

Jack-out

Plastic creep

Headed Inserts – **SPIROL** Series 16, 20, 25, 28, 30 and 51 are designed to increase the contact surface for the Compression Limiters. In addition, **SPIROL** Series 14, 19, 24, 41 and 45 generally have adequate surface area. In any event, at the design stage proper contact needs to be evaluated.

In applications using multiple Inserts where misalignment needs to be accommodated, the standard solution is to increase the clearance between the internal diameter of the Compression Limiter and the external diameter of the assembly screw. This obviously has the potential of the Compression Limiter not aligning satisfactorily with the Insert. In these situations a Headed Insert is always recommended. Consideration can also be given to increasing the wall thickness of the Compression Limiter.

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 which 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 by avoiding over-torquing the assembly screw.