



TecsPak[®] Fatigue Life Estimation

In general, TecsPak has an excellent fatigue life and will outlive urethanes, rubbers and other elastomers under the same operating conditions. Under typical operating conditions, you can expect an extremely long life from our TecsPak products; in many cases exceeding over 1 million cycles. However, almost every TecsPak application is different in that it has a unique combination of inputs. These inputs include the energy or force input, cycle rate and environmental considerations. Because the combination of these factors that may influence the actual life you experience with TecsPak products we can provide the following considerations.

Severity of Loading

Like any other product, the life of TecsPak can be influenced by how severely it is loaded. It is recommended that TecsPak products be applied so the travel is between 50 and 90% of their advertised travel. Being loaded to less than 50% of travel is not an efficient use of the product. If the bumper is loaded to an energy or force that results in a travel that is greater than 90% on a regular basis, it can result in a larger amount of compression set, which will limit the cushioning ability of the product.

Frequency of Loading

Ideally, for an extended life, the TecsPak product should not be cycled more than once per minute. If a bumper is loaded more frequently, for an extended life, it should be oversized to limit the travel. If the load severity is high, it is not recommended to load the axial bumpers more frequently than four times a minute. Radial bumpers have demonstrated an acceptable life at much higher rates of cycling.

Environment

The performance of TecsPak products does vary with temperature. (Please see Temperature Effects on TecsPak) It does work by absorbing the input energy and converting some of that energy to heat. Operating at higher temperatures can cause the bumpers to overheat and take a larger amount of compression set.

In summary, under normal operating conditions, you can expect a very long life. There have been several documented cases where the TecSPak bumpers have a life expectancy in excess of 1,000,000 million cycles and higher. Typically, it will be known very quickly in the life of a TecSPak bumper if it is sized correctly.

For additional information on applying TecSPak, please refer to our TecSPak Sizing Guidelines.