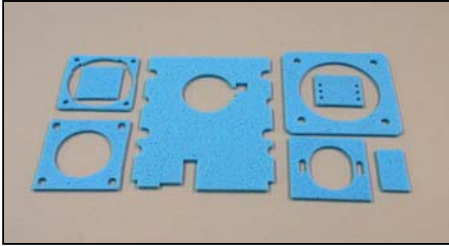


CONFOR® foam exhibits unique load deflection performance



Static and dynamic stiffness

While not addressed in this product bulletin, the dynamic properties of CONFOR foams are dramatically stiffer when deformed at higher strain rates. Under high velocity shock loading, these materials will react much stiffer than they do statically.

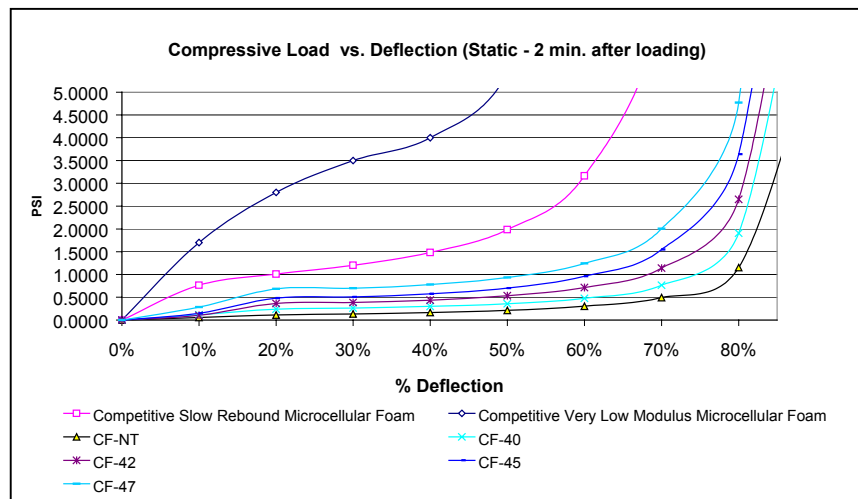
This strain rate-sensitive stiffness behavior is the primary reason that CONFOR foams provide the best possible shock protection with a minimal amount of sway space. This behavior keeps the foams from bottoming out and provides dissipation (instead of storage and release) of shock energy.

The data listed are typical or average values based on tests conducted by independent laboratories or by the manufacturer. They are indicative only of the results obtained in such tests and should not be considered as guaranteed maximums or minimums. Materials must be tested under actual service to determine their suitability for a particular purpose.

Most resilient foams exhibit compression force deflection (CFD) properties that follow Hooke's Law. That is, the further they are compressed, the harder they push back against whatever is compressing them. This behavior is best illustrated in the form of a load vs. deflection graph. Under compression, a resilient foam material generates a CFD curve that steadily increases at a slope dependent upon the modulus of the foamed polymer, until all of the cells are collapsed and the foam becomes a solid. At this point, the stiffness of the foam increases dramatically.

Although these properties frequently are useful, they cannot meet the requirements of applications where high compressions are necessary to fit into small gaps. Nor can they meet space-filling needs when tolerance stack-up or variable surface topography produces an inconsistent gap. For these applications, a soft foam with stress relaxation properties is much more desirable.

Because they are internally damped, CONFOR foams provide even pressure across a wide range of deflection. This behavior produces a very flat CFD curve relative to other microcellular foams. CONFOR foams are also very soft and compressible. As a result, CONFOR foams are the perfect choice for use in small gaps where high compression is required and in variable gaps where a consistent pressure is required. Moreover, CONFOR foams meet these needs without applying unacceptably high forces to sensitive components, without pushing housings apart or without twisting and warping delicate structural components with low stiffness.



CONFOR foams provide a lower and more consistent pressure across a wide range of deflection. With CONFOR CFNT foam, there is less than a 0.3-psi increase from 10 to 60 percent deflection. The competitive materials shown produce from 9 to 33 times this value. A lower, more even pressure profile will induce less stress, warp and twist on mating parts.