

BARRY CONTROLS



DEFENSE & INDUSTRY
Antivibration



Question: What is meant by load rating, and what factors influence it?

Answer: Advertised isolator load ratings are for long term, static support under 1g (gravity) conditions. They do not indicate the additional dynamic load capacity or break strength, which will be much higher. Selecting isolators based on their load rating is successful for the majority of applications but does not guarantee that they will perform in every application or installation.

Advertised static load ratings for some products can be adjusted up or down depending on the expected dynamic service environment. For example, if an isolator is to be used in harsh or severe off-road conditions, a lower load rating should be considered to help prevent premature failure. This is often referred to as “de-rating” the long term static load capacity.

Other factors that would necessitate de-rating could be:

- Anticipated high dynamic loading conditions (e.g. 5x or 10x the static load) and frequency
- Environmental extremes (extended high or low temperature operation, extended environmental and chemical exposure)
- Long service life expectations (or applications where isolator replacement is difficult/expensive)

Conversely, some isolators can be overloaded if the environment will be benign, especially in a stationary setting. For example, the catalog recommended loading for our VHC Series was established based on 18” drop testing, typical of a transport environment. However, the mount was originally developed to handle shocks with less than a third of the energy of the 18” drop. In that case, the mounts could support about three times the current advertised load.

Of course there are other factors that affect load rating. Always consult the factory whenever a departure from recommended loading is being considered.

All of our isolators are designed to accommodate dynamic loads in all axes, even if they are only recommended for axial static load support. How they perform “off axis” depends largely on the stiffness ratio of the mounts in their different axes, the payload center of gravity location with respect to the mounting plane and its principle mass moments of inertia.