



**Q:** What should be considered when installing rubber isolators?

**A:** To prevent damage to rubber isolators where they interface with structures, the following recommendations should be considered. These suggestions will help maximize product life and integrity and minimize damage.

Avoid sharp corners, edges and burrs in the mounting structures which can cut the rubber. A cut can propagate into a crack and cause premature rubber failure.

Surface roughness should be moderate. Size of the part will influence actual recommended roughness, but 1.6 micrometers [63 micro inches] for machined or cast surfaces is a reasonable condition for most of the parts listed on this site. Otherwise undisturbed surfaces can be used as is if they don't have excessive scale or other imperfections and irregularities.

Rubber is considered incompressible. So, when it is deflected in one direction, it will expand or contract in the other orthogonal directions to maintain its volume. For example, if a cylinder of rubber is compressed along its axis, the circumference will grow or "bulge". This bulge must be accommodated in the installation so the rubber does not make unwanted contact with other structures or surfaces which could damage the rubber and/or affect the part's stiffness characteristics.

This is why the Snubbing Washers recommended and required for certain Hutchinsons' products have a larger outside diameter than the rubber component. The bulging rubber could otherwise exceed the washer diameter and wrap around the washer edges. As discussed above, this wrap-around condition can damage the rubber by cutting into it. Our snubbing washers are designed with this in mind. If you procure your own washers, and they have to be smaller than recommended, the interfacing edge should be gently rounded or chamfered to inhibit damage. Even so, there is still risk of damage when using undersized washers.

For parts with rubber surfaces which install into holes in a structural component or bracket, the hole should include a blend radius around both edges. A 45° chamfer is an acceptable alternative to a radius. The size of either would depend on the size of the rubber part. The published information for Hutchinson' products on this site includes specific recommendations where applicable.

With some isolators (e.g. Hutchinson's 22000 series and Barry Bond series), it may be difficult to insert the rubber component into its hole due to intentional interference fit. (Interference fits are often incorporated into rubber isolator designs to create pre-compression in the rubber which is beneficial for fatigue life.) Lubrication is sometimes necessary to ease installation. Care must be taken in selecting the lubricant so as not to damage the rubber. Petroleum based lubricants should not be used.



Commercially available rubber lubricants, which will not adversely affect the rubber, can be used, most of which will evaporate after installation. Sometimes soapy water or liquid soap can be effective, and they will not usually attack the rubber. However, they tend to keep the interface “wet” and lubricated which can affect the performance of the isolator.