

Building Vibration Isolation System

Building vibration isolation system has moved on to the isolation of entire buildings rather than just building components. We can provide you with neoprene and natural rubber bearing pads to frequencies as low as 6Hz and steel spring assemblies in the 0.75 to 2-inch (19 to 50mm) deflection range in individual capacities of 1,000,000lbs. Both techniques are used to keep ground vibration and noise out of buildings close to railroads, subways, heavy traffic or industrial impact.

"MASON" Type BBNR

Multi-layered Bridge Bearing Natural Rubber Pads

All the principles that apply to machinery isolation are exactly the same when protecting a building. The only different is that rather than the vibration traveling down into the structure, the direction is up from the foundation or pilings. The trick is to insert a proper isolator between the foundation or columns and the building itself. The limitation is not the material, but the need for the pads to become extremely thick and deflect sufficiently to be effective at low frequencies.

Features

- ♦ Maximum rated deflection is 1/8-inch
- ♦ Maximum load range for type BBNR pads of size 10 x 10 x 1 (inch) can be upto 25000lbs
- ♦ Pads can be stacked with 1/8-inch steel plates between them upto 250psi (17.5kg/cm²) for higher deflections and greater efficiency
- ♦ Designed natural frequency of the system is around 6Hz
- ♦ A practical thickness limit is usually 6-inches with plates interspersed between layers of the pads to increase capacity

Applications

- ♦ Eliminates high frequencies vibration, above 16.5Hz from ground-borne vibration due to traffic flow or other impacts to vibration or noise sensitive buildings, e.g. studio, laboratory, etc
- ♦ Bridge support bearing pads, for reducing of impact vibration to bridge supports and adjacent sensitive buildings



Building support steel on 6.5Hz rubber bearing pads



Mason Type BBNR Multi-layered Bridge Bearing Natural Rubber Pads

"MASON" Type SLFPC

Pre-Compressed Spring Assembly

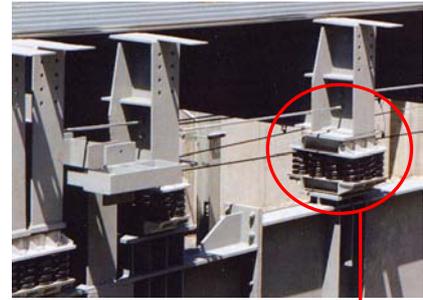
The helical coil spring, becomes the isolator of choice for input frequencies lower than 17Hz or for those applications where the incoming energy is so high that a higher degree of isolation is needed than practical with rubber pads alone. As the structure is built and weight added, if the springs were not pre-compressed, they would constantly deflect and the structure change elevation. By pre-compressing, the structure does not start to descend until the construction weight has passed 75% of the assigned dead load.

Features

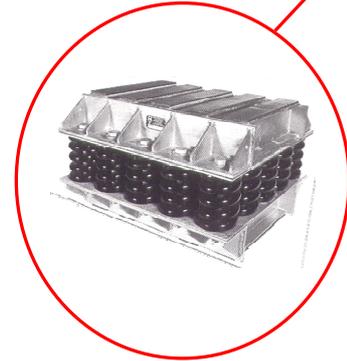
- ◆ Designed natural frequency of the spring system isolation could be down to around 1.5Hz
- ◆ When exact weight per location is difficult and the accuracy of the springs can vary as much as $\pm 10\%$

Applications

- ◆ For building foundation vibration isolation at input frequencies lower than 17Hz when rubber isolator is not effective in controlling the problem



Spring Assembly at building supports



Pre-compressed SLFPC Spring Assembly

"MASON" Type SLFJ

Hydraulically Adjusted Isolators

We use hydraulically loaded spring isolators with adjustment bolts or some other holding device, to hold the adjustment after the load is transferred to the springs by hydraulic jacks. The building is held at a fixed elevation by stanchions or piers until the building is completed. It is always at a fixed elevation and does not move during construction. Hydraulic jacks are used to compress the mountings sequentially and structural support bolts, wedge jacks or shims hold the adjustments. The mounting process continues until the springs accept the load and the steel spacers are removed.



Hydraulically Adjusted SLFJ Isolators

Features

- ♦ A foolproof system where the springs need servicing, steel shims are put back in place, the springs relaxed in a reverse of the installation procedure and the load transferred back to the stanchions or piers
- ♦ Designed natural frequency of the system could be down to around 1.5Hz

Applications

- ♦ For building vibration isolation at input frequencies lower than 17Hz and servicing provision to access the mounting is available at design

Sylomer® PUR Elastomer Pad

Polymer Vibration Isolation Material

Sylomer® PUR elastomers are a cellular special PUR elastomers on the basis of polyether and polyester polyols. They come to use in different fields - construction, machine isolation and industry. Sylomer® is used as an elastic interlayer like a spring and can be adapted to the needs of application and of the construction. That is the construction method simply by selecting the Sylomer® - type, the thickness and the loaded surface area.

Features

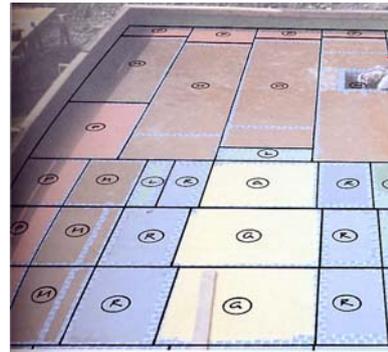
- ♦ Mechanical loss factor is 0.23 to DIN 53513 test standard
- ♦ Allowing short term peak load upto 20 times its operating load without permanent deformation
- ♦ Dynamic stiffness ratio ranging from 1.4 to 4.0
- ♦ Operating load range from 0.015 to 0.60 N/mm²
- ♦ Inflammable, rated class B2 to DIN 4102 test standard
- ♦ Excellent resistance against oil, grease and hydrocarbon

Applications

- ♦ Suitable for vibration isolation in Multipurpose Hall, Theaters and even Transformer Station
- ♦ Low compression set, between 2% to 6% according to DIN 53572 standard (70hrs at 50% compression, measured 30 min after decompression)
- ♦ Quasi-Static load deflection curve to suit applications



Sylomer materials



Laying of pads at building foundation according to load distribution