

## Isolating FPA and LFPA Piezo Actuators from Moment and Lateral Loading

As described in the application note, “Piezo Actuators - Mounting and Handling Guidelines”, mounting hardware must not apply a moment or lateral loading to the output faces of the actuator frames. If mounting conditions or loading may apply a moment or allow lateral motion, the user should apply isolation flexures or ball pivots to the actuator’s output faces or use supplementary bearing stages to carry the moments or lateral loads.

### Simple Spherical Pivots

An example of a simple isolation method using hemisphere pivots is shown in Figure 1. The wrapped around frame may be comprised of conventional hinge mechanisms or a flexure using a resilient material. Spherical pivots can be full or hemispheres and may be captured in machined divots in the wrap around frame.

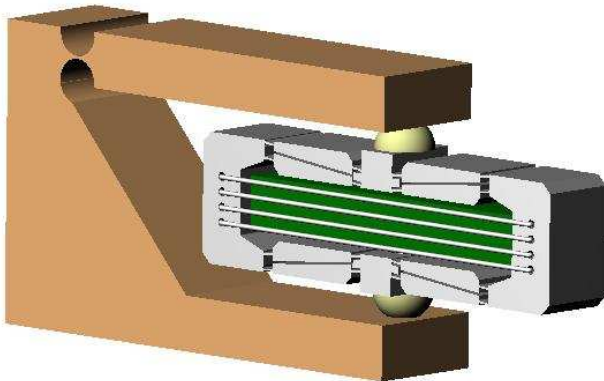


Figure 1 – Using Spherical Endcaps in a Flexure frame to isolate Piezo-Actuator from Lateral or Moment Loading

The follower frame can also be designed with a spring preload in order to carry any stretching load that might act to separate the frame from the Piezo-Actuator. Figure 2 shows a different scheme for achieving the same purposes.

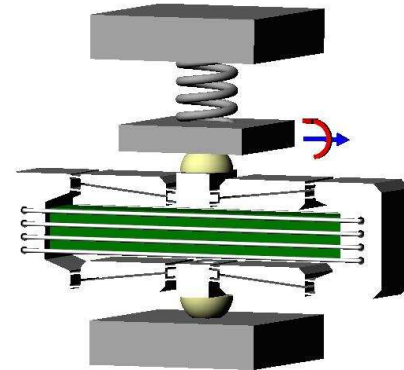


Figure 2 – Using Spherical Endcaps in a Spring-loaded Follower Plate to Limit Moment and Lateral Loading

### Simple Flexure Joints

An example of a simple flexure method for isolating the actuator using cross flexures is shown in Figure 3. Another option is the use of conventional shaker stingers (like those on voice-coil shakers) on the actuator outputs.

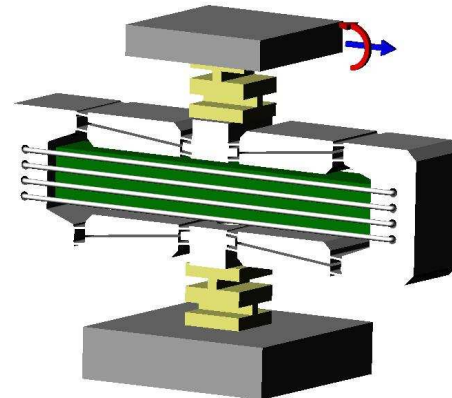


Figure 3 – Using Flexure Joints on the Output of the Actuator to Limit Moment and Lateral Loading

Naturally, when flexures, stingers or spherical joints are used, off axis loading will cause rotation of the unit. External guidance (Figure 1) or external stages like ball or crossed roller stages will prevent such rotation.

**DSM can be contracted to design a suitable frame for your application.**