

Accelerometer Designs

- Shear system
- Compression system
- Bending or flexure system

The reason for using different piezoelectric systems is their individual suitability for various measurement tasks and their varying sensitivity to environmental influences. The following table shows advantages and drawbacks of the 3 designs:

	Shear	Compression	Bending
Advantages	Low temperature transient sensitivity	High sensitivity-to-mass ratio	Best sensitivity-to-mass ratio

	Shear	Compression	Bending
Advantages	Low temperature transient sensitivity Low base strain sensitivity	High sensitivity-to-mass ratio Robustness Technological advantages	Best sensitivity-to-mass ratio
Disadvantages	Lower sensitivity-to-	High temperature transient	Fragile

mass ratio

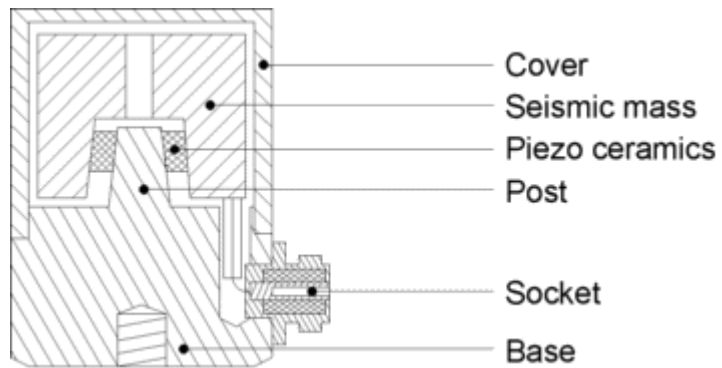
sensitivity

Relatively high temperature transient sensitivity

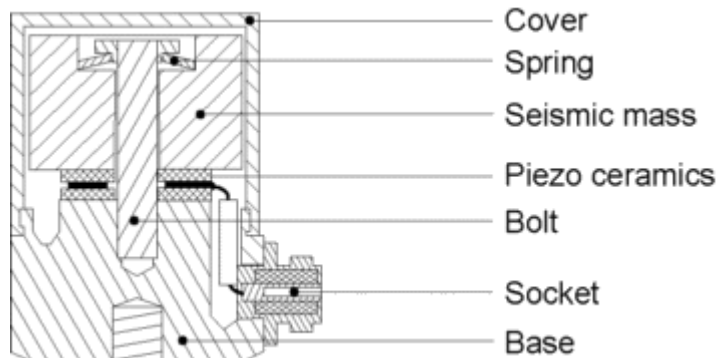
Shear design is applied in the major part of modern accelerometers due to its better performance. Compression and bending type sensors are still used in many applications, however.

The main components of the 3 accelerometer designs are shown in the following illustrations:

Shear System:



Compression System:



Bending System:

