

Accelerometer mounting and installation techniques

August 2014

Wilcoxon
SENSING TECHNOLOGIES

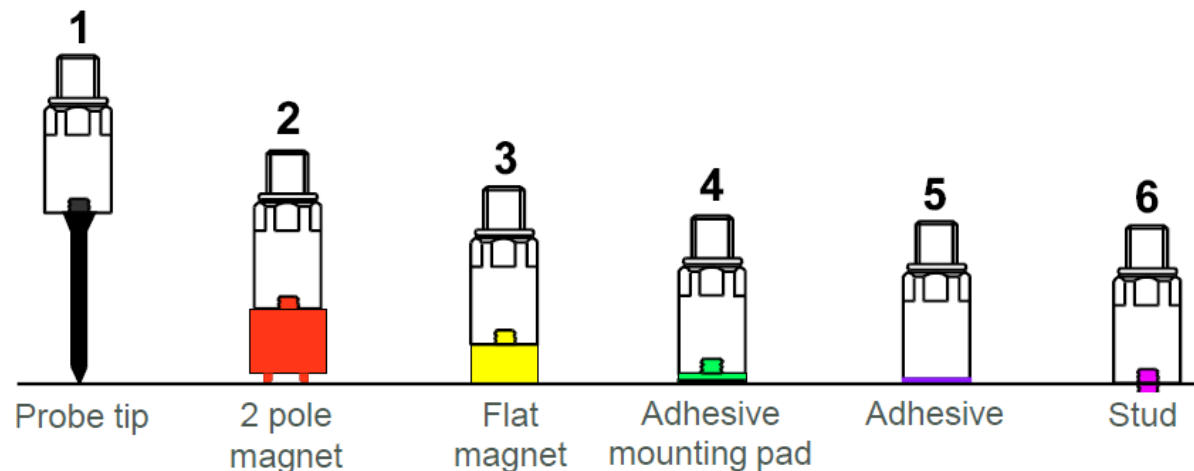
Mounting considerations

- Is the placement for monitoring in a safe, accessible location?
- Can the accelerometer be permanently mounted?
 - Can the machine be faced properly?
- Mounting location
 - Where is the best location?
 - Are there obstacles?
- What are the frequencies of interest?



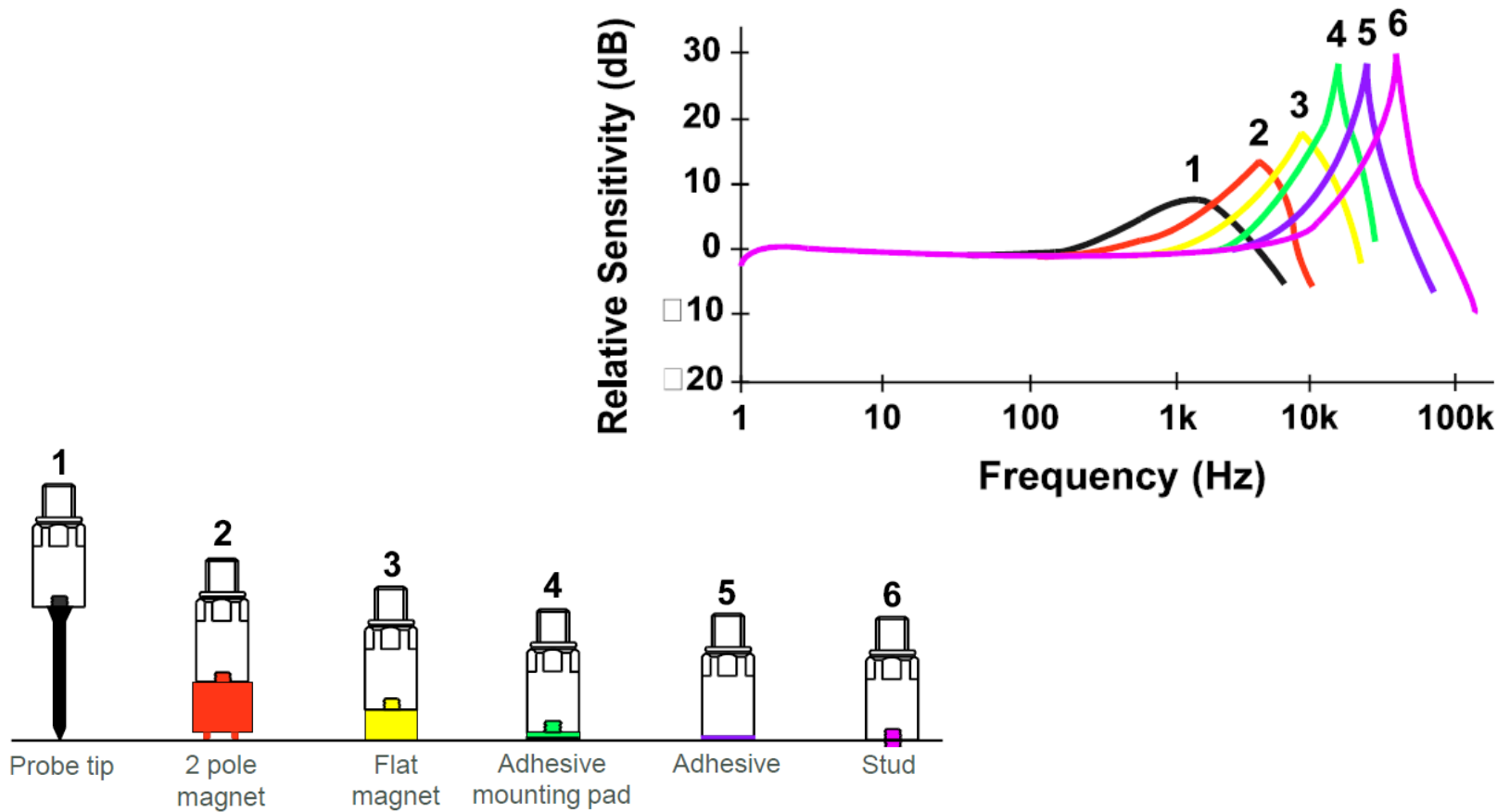
Accelerometer mounting options

- Hardware selection
- Mounting location
- Surface preparation
- Mounting resonance



Accelerometer mounting considerations

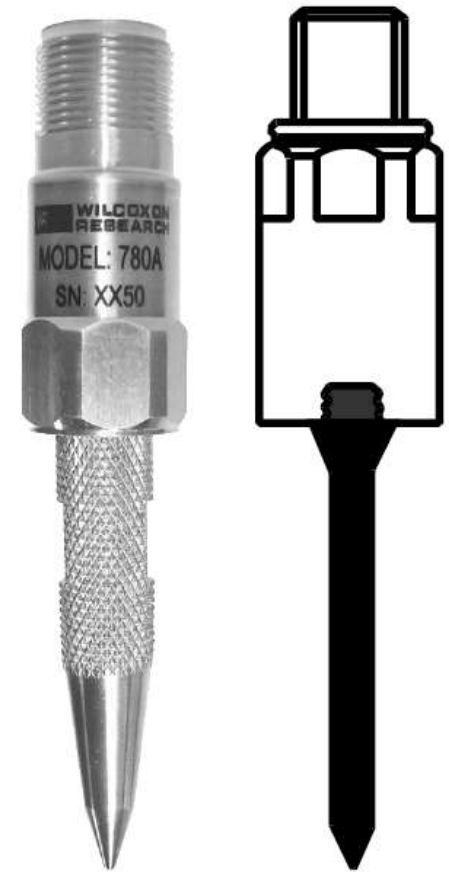
Mounting technique determines mounted resonance



Accelerometer mounting considerations

Probe tips

- Use on difficult to reach areas and aluminum motor frames
- Do not use for measurements less than 10 Hz
- Mounted resonance: 800 – 1,500 Hz



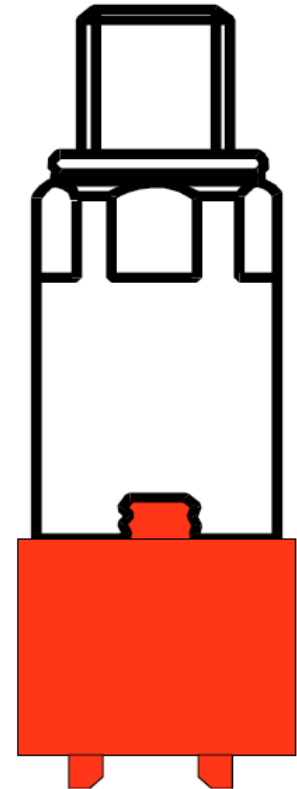
Accelerometer mounting considerations

Magnets for curved surfaces

- Use on irregular and curved surfaces
- Made of SmCo26 (samarium cobalt)
- Includes 1/4-28 stud
- Mounted resonance: 3,000 – 7,000 Hz



Wilcoxon B13 magnet

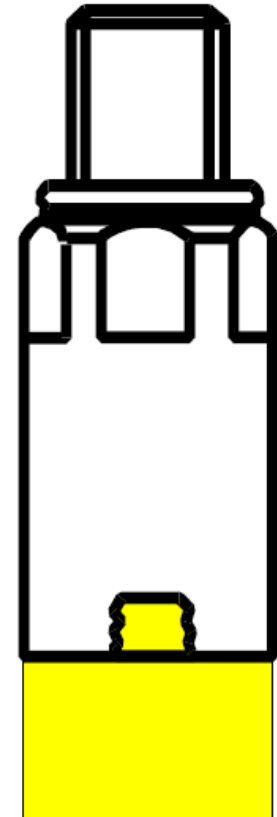


Magnets for flat surfaces

- Use on flat surfaces or magnet pads
- Magnet made of rare earth material
- Some have an integral 1/4-28 mounting stud, others have a 1/4-28 tapped hole
- Other stud sizes available
- Mounted resonance: 5,000 – 10,000 Hz



Wilcoxon B3 magnet

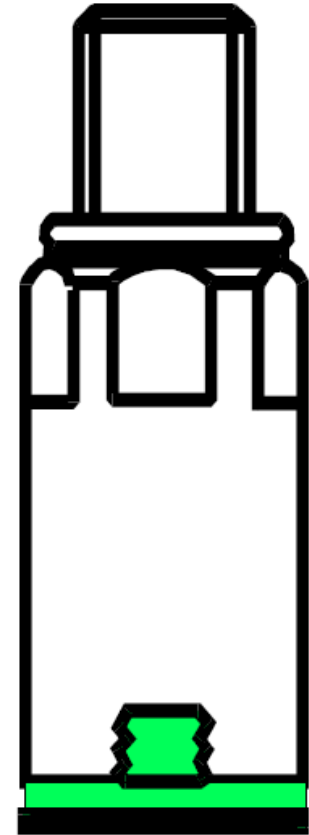


Adhesive mounting pads

- Provides adequate frequency response
- Models available for most common thread sizes
- Models available with tapped holes for use with captive screw accelerometers

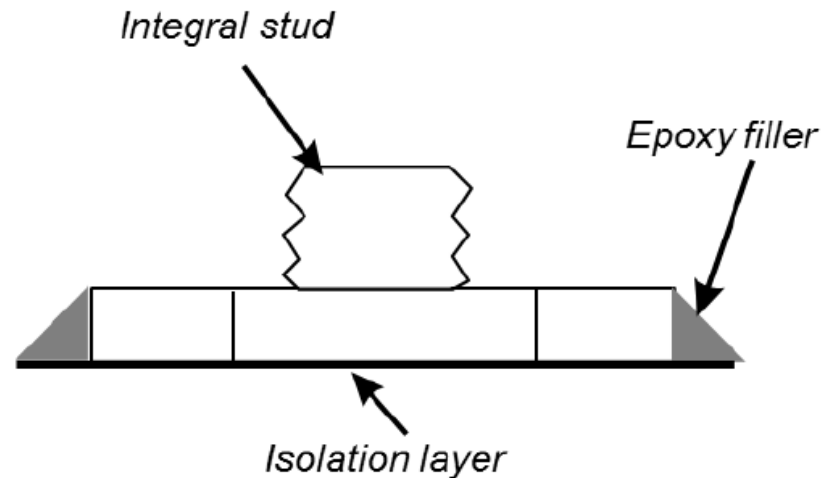


Wilcoxon SF8 mounting pad



Adhesive mounting

- Spot face surface
- Abrade surface
- Clean surface
- Use proper adhesive
 - VersiLock® 406 / Cat 19
 - Loctite® Depend
 - Loctite® Liquid Metal
- Use proper mix ratios

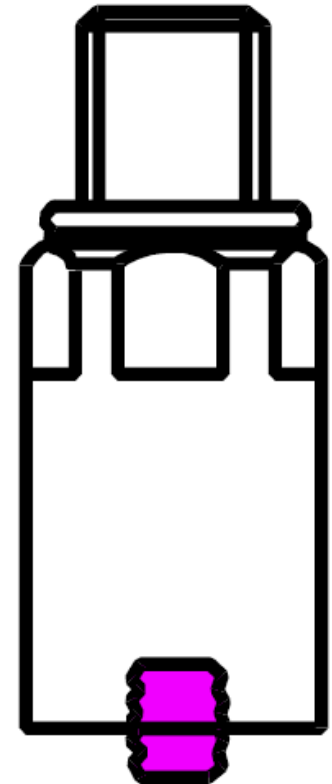


Mounting studs

- Provide highest frequency response
- Various stud sizes available
- Captive screws are available with various mounting threads

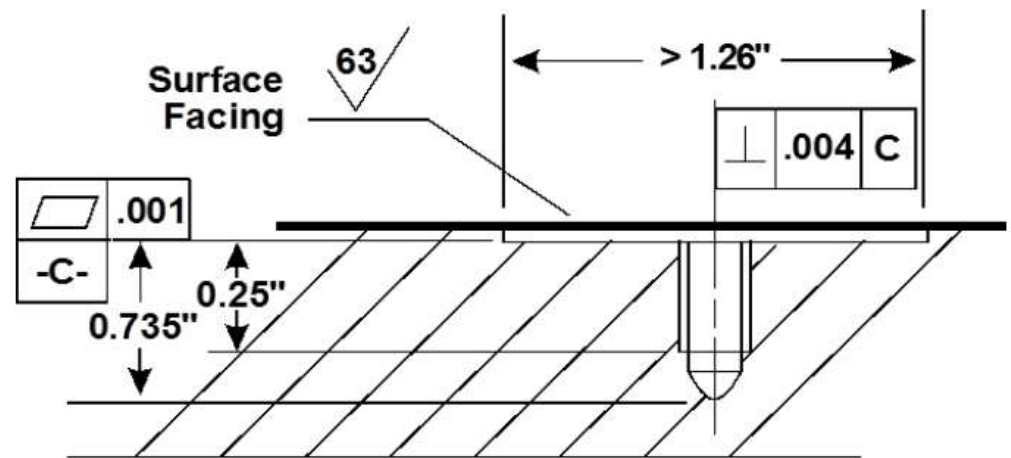


Wilcoxon SF6 mounting stud



Stud mounting

- Tap drill hole to proper depth
- Spot face surface perpendicular to hole
- Tap proper threads
- Ensure flatness, surface texture and perpendicularity



Advantages of permanently mounted sensors

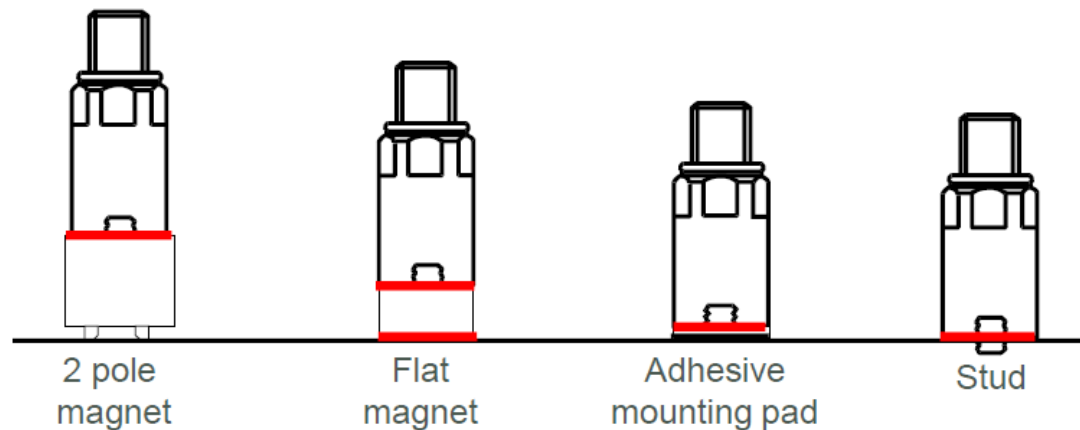
- Safety
- Convenience
- Repeatability of data
- Faster data collection
- Reduces auto collection errors



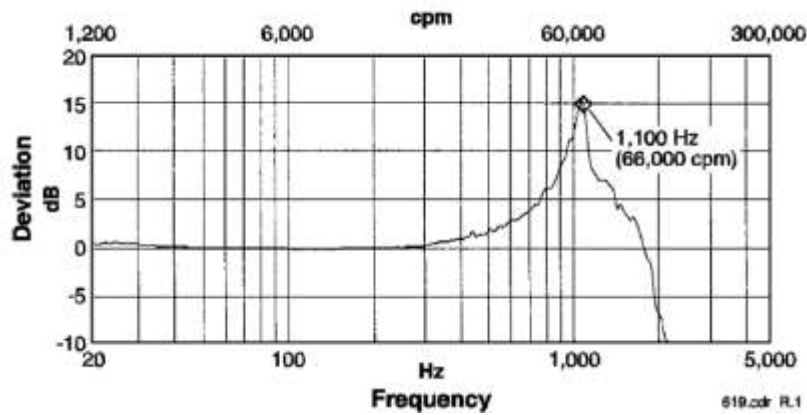
Accelerometer mounting considerations

Coupling fluids

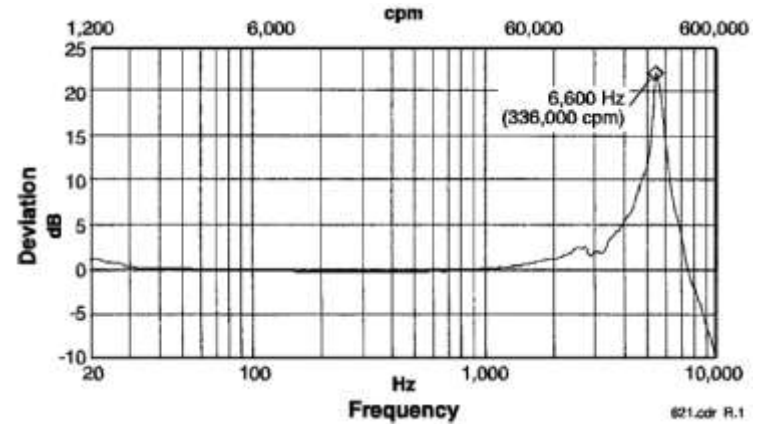
- Coupling fluids should be used between the sensor and mounting surface interfaces
- Coupling fluids include:
 - Silicone grease
 - Oil
 - Petroleum jelly / beeswax



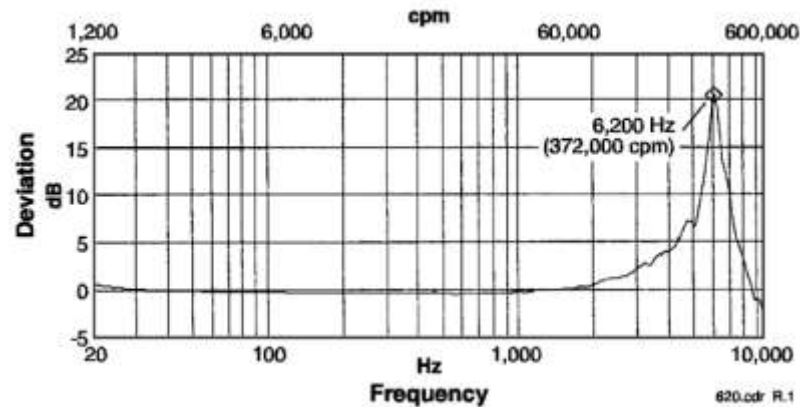
Mounting responses



Probe tip



Flat magnet



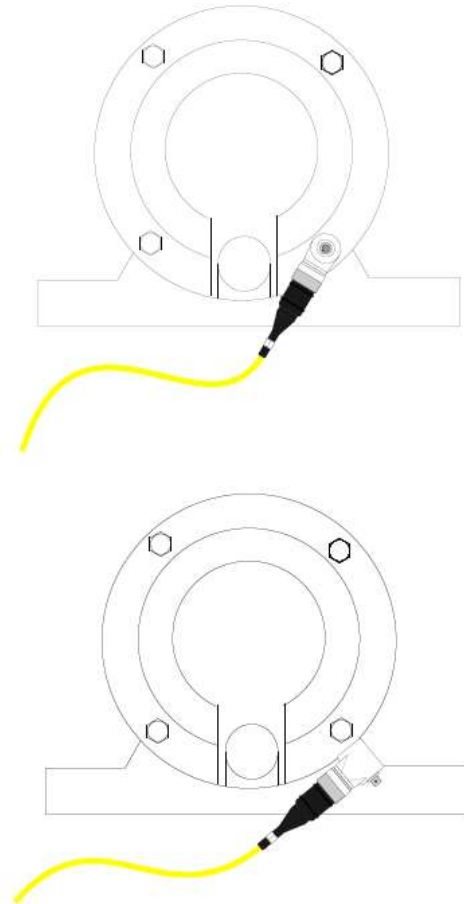
Curved surface magnet

Mounting resonance

- Mounting resonance can amplify high frequency signals and increase overload
- Mounting resonance can appear to be severe rolling element and gear mesh faults

Mounting location

- Mount in the load zone
- Mount as close to the point of interest as possible
- Use low profile, side exit sensors for confined areas
 - Allows for neat cable routing



Permanent monitoring solutions

Switchboxes


- Provide connection centers for terminating cables
- Connections to portable data collectors
- Used in most industrial applications



VibraLink VLS switchbox

Wilcoxon Sensing Technologies

For more information, please contact us:

 +1 (301) 330 8811

 info@wilcoxon.com

 www.wilcoxon.com

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