Accelerometer mounting and installation techniques

August 2014
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

![Diagram of accelerometer mounting options]

Accelometer mounting considerations
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Mounting technique determines mounted resonance

![Graph showing relative sensitivity vs. frequency for different mounting techniques.](image)

- **1. Probe tip**
- **2. 2 pole magnet**
- **3. Flat magnet**
- **4. Adhesive mounting pad**
- **5. Adhesive**
- **6. Stud**

**Accelerometer mounting considerations**

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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
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
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
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
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
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

Accelerometer mounting considerations
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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
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