

## Accelerometer mounting and installation techniques

August 2014

  
SENSING TECHNOLOGIES

# Mounting considerations

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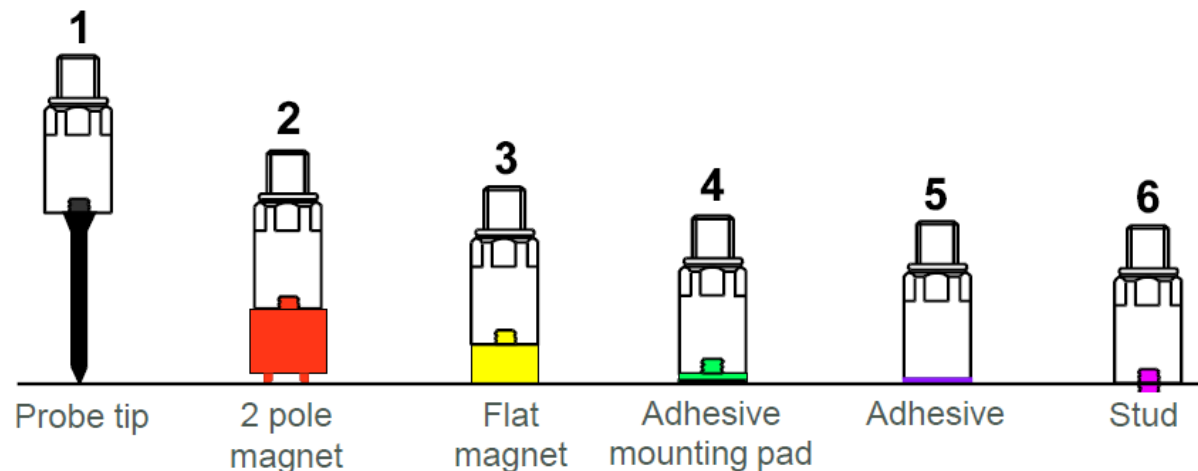
- Is the placement for monitoring in a safe, accessible location?
- Can the accelerometer be permanently mounted?
  - Can the machine be faced properly?
- Mounting location
  - Where is the best location?
  - Are there obstacles?
- What are the frequencies of interest?



# Accelerometer mounting options

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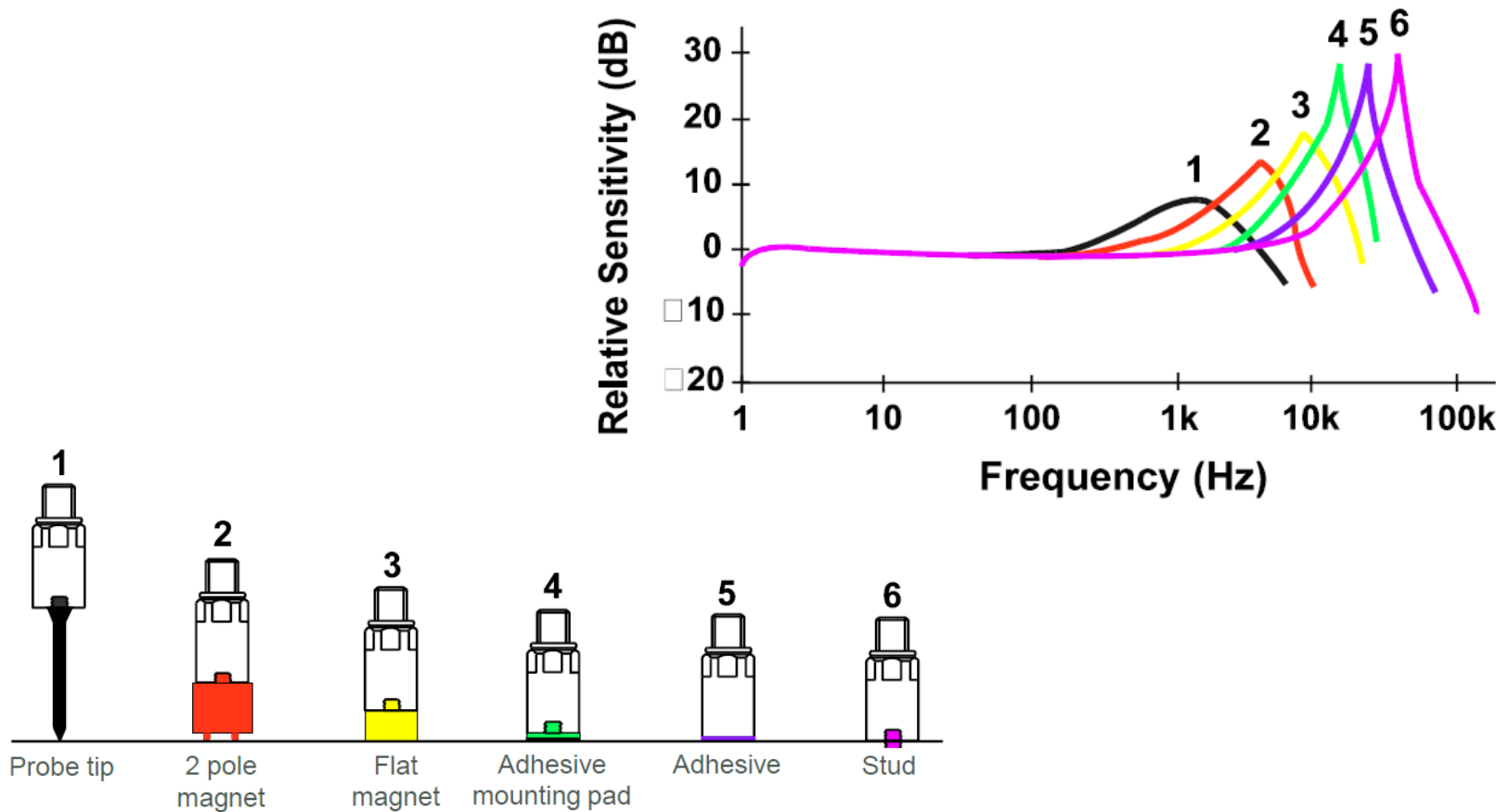
- Hardware selection
- Mounting location
- Surface preparation
- Mounting resonance



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## Accelerometer mounting considerations

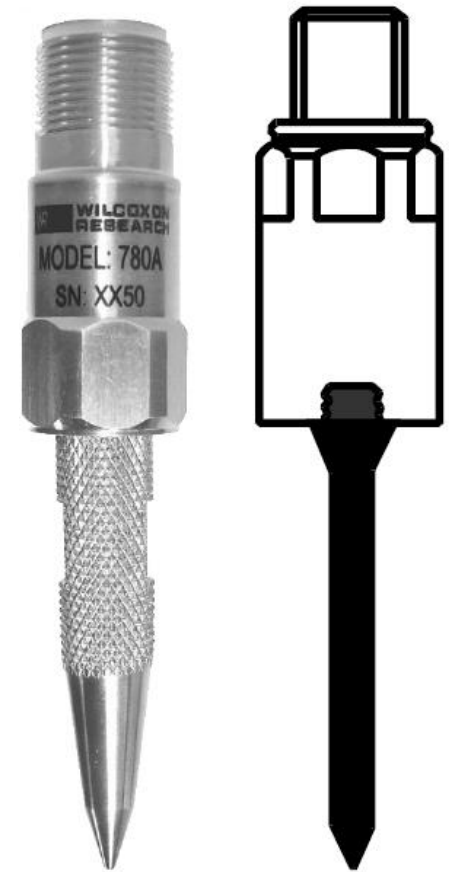
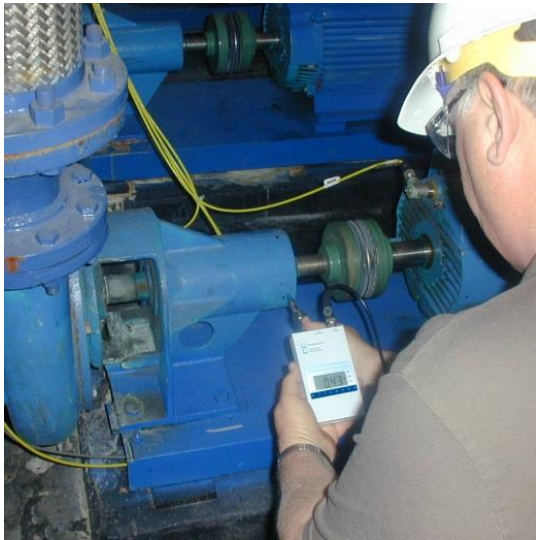
# Mounting technique determines mounted resonance



## 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

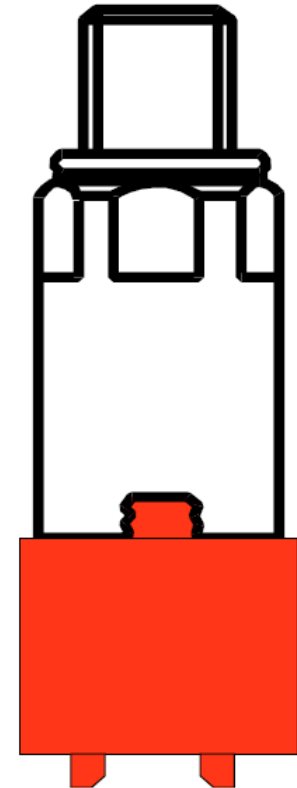
## Magnets for curved surfaces

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- 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



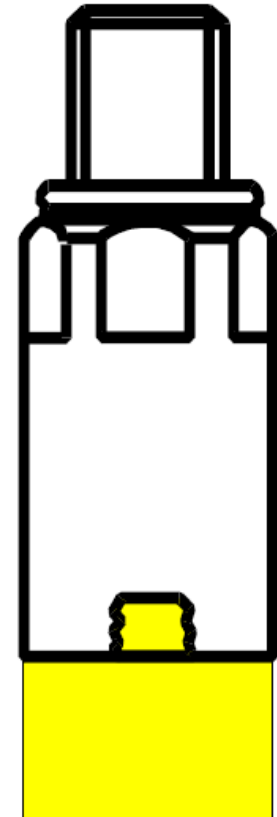
## Magnets for flat surfaces

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- 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



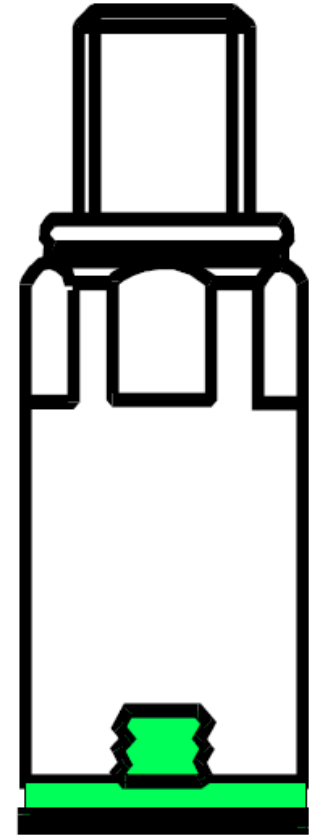
# Adhesive mounting pads

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- 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



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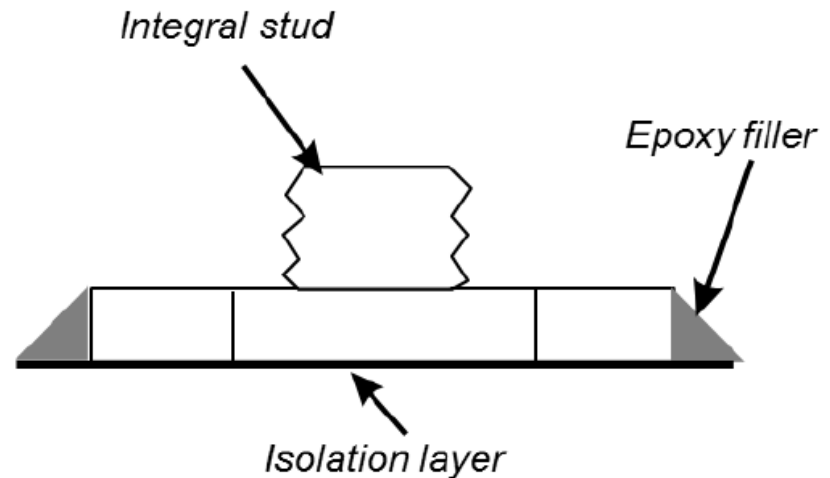
## Accelerometer mounting considerations



# Adhesive mounting

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



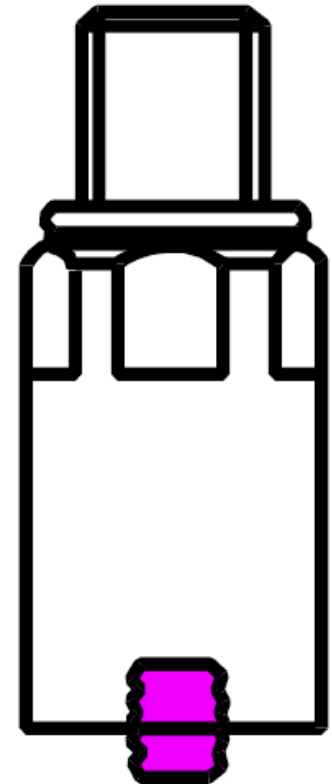
## Mounting studs

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

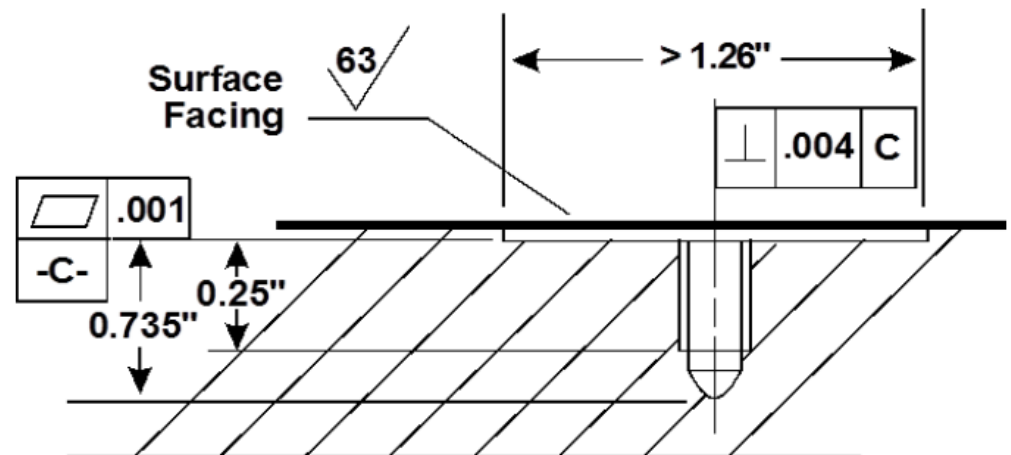


Wilcoxon SF6 mounting stud



# 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

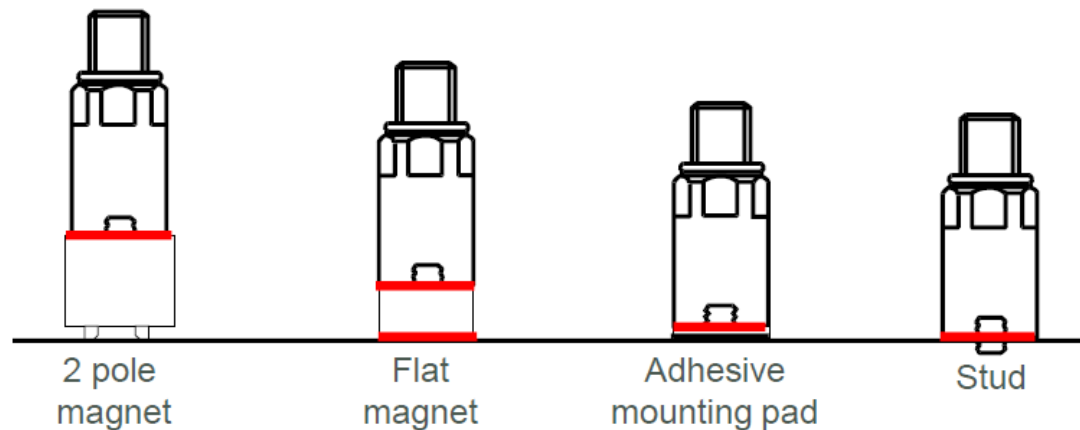
- Safety
- Convenience
- Repeatability of data
- Faster data collection
- Reduces auto collection errors



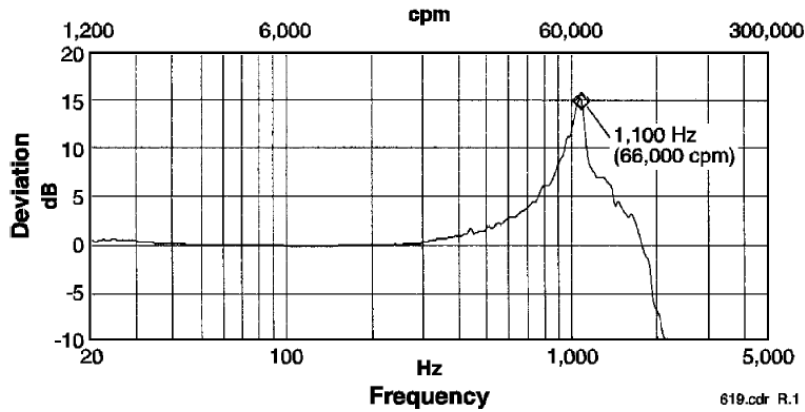
# Coupling fluids

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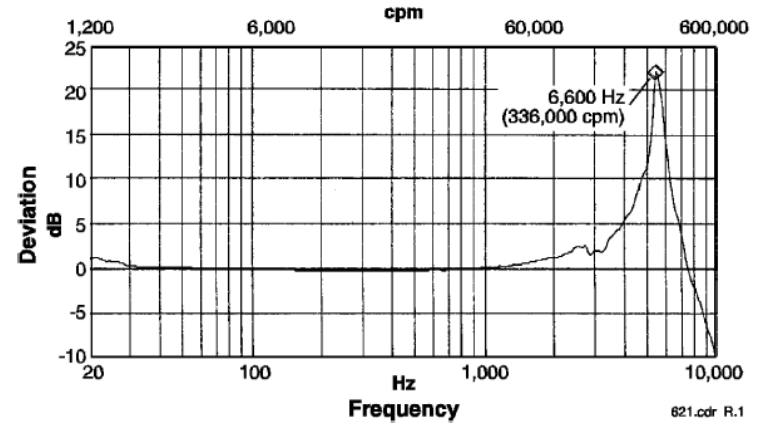
- Coupling fluids should be used between the sensor and mounting surface interfaces
- Coupling fluids include:
  - Silicone grease
  - Oil
  - Petroleum jelly / beeswax



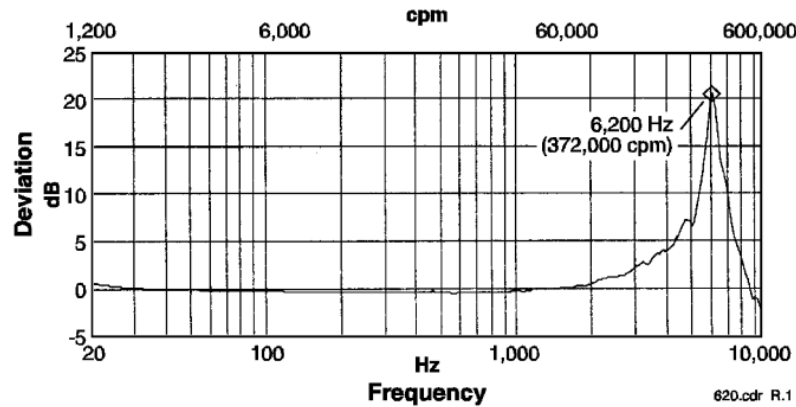
# Mounting responses



Probe tip



Flat magnet



Curved surface magnet

# Mounting resonance

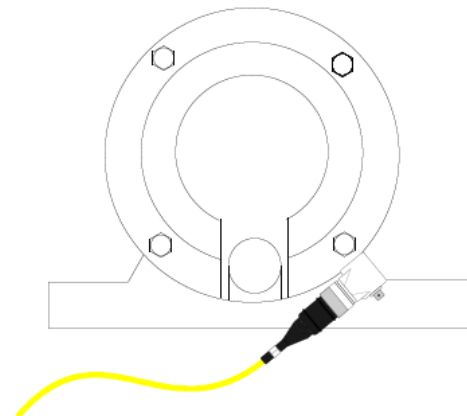
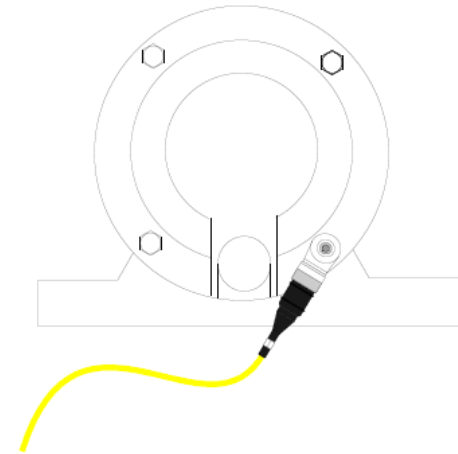
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- Mounting resonance can amplify high frequency signals and increase overload
- Mounting resonance can appear to be severe rolling element and gear mesh faults

# Mounting location

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- 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

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



VibraLink VLS switchbox

## Wilcoxon Sensing Technologies

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