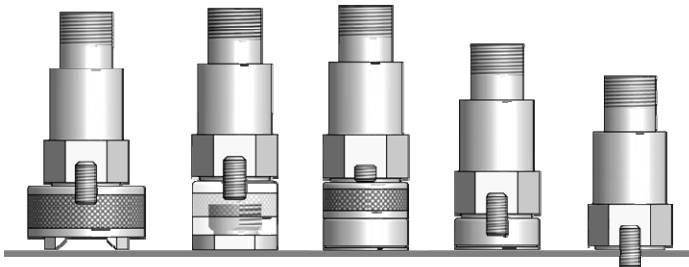


December 1, 2008



## Executive Summary

This edition of CTC AppNotes will help provide an understanding of the advantages and disadvantages inherent in the various mounting methods for accelerometers or Piezo-velocity sensors. By better understanding these basic principles, analysts will be better able to decide which hardware and techniques to utilize depending on the type of data you require for a given application.

### Accelerometer Mounting Options

There are 4 general categories of mounting styles which we will focus on:

- Magnet mount with a curved surface or flat surface magnet.
- Specialty mounting pads, such as motor fin mount pads.
- Epoxy Pads; including Quick Connect studs, targets for flat magnets, and permanent mounting pads.
- Stud mount

There are advantages and disadvantages to each method of sensor mounting. Generally speaking an analyst will capture better data when the mounting method adds minimal "mass" (or weight), maximizes surface area contact, maximizes "stiffness" (how firmly the sensor is attached to machinery) and is located closer to the source of the vibration

### Magnet Use

One of the most common methods of portable data collection is through the use of a "curved surface" (or "2-bar") magnet system. The contact area of a these magnets is not as good as a Quick Connect system or a flat magnet with a target, and it's mass tends to be higher; therefore analysts should not depend on data above 2 kHz (120,000 CPM).



Flat magnets and the quick connect system offer a far better response range due to the increased surface area in contact with the source of vibration. A flat magnet on a well installed target can yield reliable data up to 8 kHz to 10 kHz (480,000 - 600,000 CPM).



### Specialty Mounts

Specialty mounts such as Grease Fitting Mounts (or "Zerk Adapters"), and Motor Fin Mount Pads tend to add a bit of mass, and lack some stiffness. However they are designed to be positioned in good proximity to the source of bearing vibrations, therefore they tend to provide good data, usually in the 2 kHz (120,000 CPM) to 5 kHz (300,000 CPM) range. Most specialty mounts can either be used for magnet targets or for permanent mounting.



### Permanent Mounting

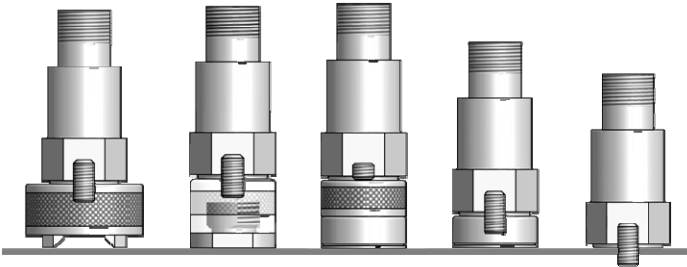
Assuming proper techniques have been employed to mill the surface and affix the sensor, permanent mounting options will tend to produce good results at higher frequency ranges (up the full useful range of the sensor). The data in general will be cleaner, more accurate, and highly repeatable. However, to achieve these results the initial installation requires more care, and more time compared to some portable methods. Permanent Mount installations initially also tend to be more expensive due to dedicating a sensor to each monitoring point. This additional investment can easily be made up when analysts are able to gather better data more efficiently.



Parts included in this discussion:

MH112-1A Curved surface magnet

If any CTC vibration analysis hardware product should ever fail, we will repair or replace it at no charge.



- MH103-1B Flat Surface magnet
- MH133-1A Magnet target
- MH107-1A & 1B Quick Disconnect System
- MH108-4B Mounting Stud
- MH101-1B Epoxy Stud Mount
- MH117-1A Installation Tool Kit
- MH117-1B Installation kit w/tapset

For more information on Permanent mounting see the CTC APP note "Permanent Sensor Mounting"

If you have any questions or for Further information please contact CTC directly via Email at [dgripe@ctconline.com](mailto:dgripe@ctconline.com) or [sales@ctconline.com](mailto:sales@ctconline.com) or feel free to call 1-800-999-5290 in the US and Canada or +1-585-924-5900 internationally.



VIBRATION ANALYSIS HARDWARE

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