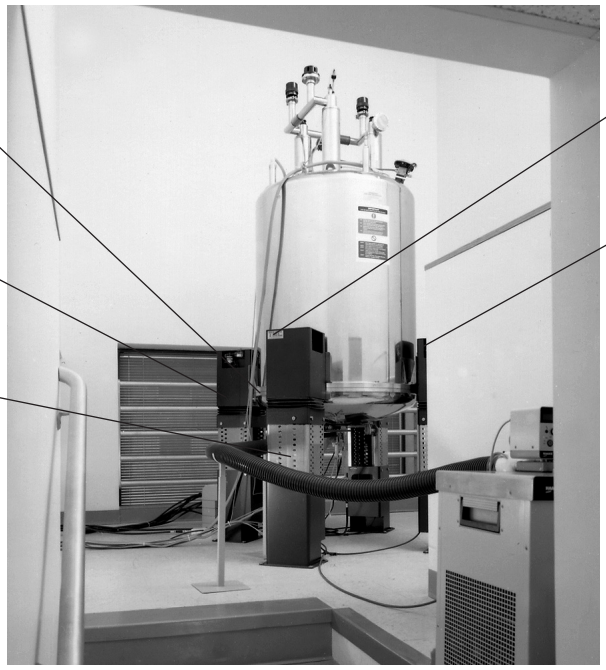
Technical Manufacturing Corporation

Blending precision floor vibration control with a commitment to manufacturing™

60 SERIES

NMR Vibration Isolation Posts



NMR spectrometer installed with new NMR vibration isolation posts.

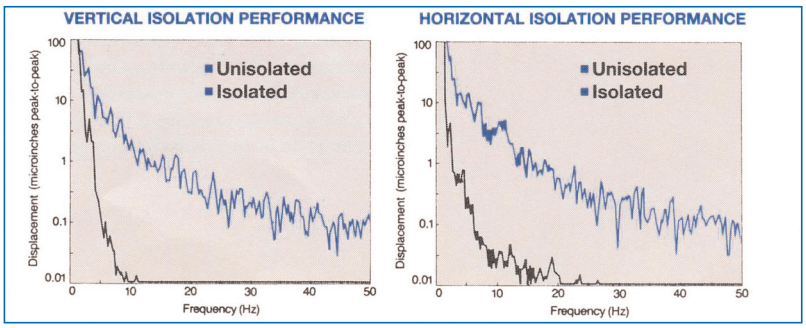
TMC introduces a new line of high-performance, pneumatic vibration isolation posts designed specifically for the unique requirements of high-resolution NMR spectroscopy. The design is modular: one leg style attaches to magnets from 300 through 600 MHz. Slightly different flange brackets and adjustable height allow universal application.

Historically, researchers requiring a high degree of vibration isolation have employed TMC floor platforms beneath the magnet and support stand. Though isolation is achieved, the platforms are massive and require rigging into place. While these platforms are still available for special requirements, we recommend our new, free-standing vibration isolation posts for most NMR spectrometer applications, because they offer several key advantages:

- They bolt directly through the bolting flange for a safe, positive attachment.
- They may be retrofitted to installed, energized magnets.
- They are 100% constructed from nonferromagnetic 304 alloy stainless steel, brass, and aluminum.
- They provide more stability by suspending the magnet and accommodating its high center of mass.
- They eliminate the magnet stand, which is not designed with vibration damping as its primary function.
- Holes in the base plate allow lagging the posts to the floor for an additional safety margin.

With dozens of successful field installations, TMC free-standing posts are the industry standard for NMR spectrometer vibration isolation.

Typical Isolation Performance with TMC Vibration Isolation Posts



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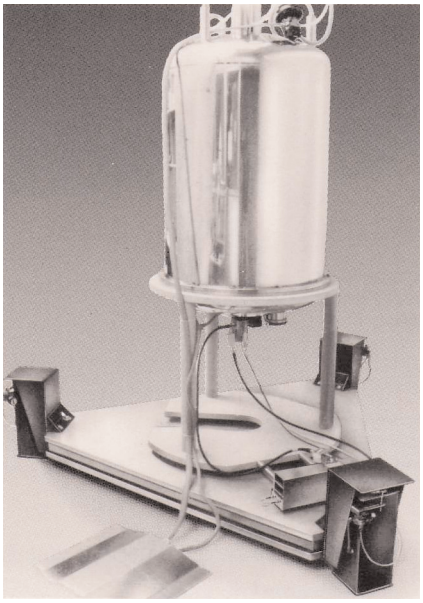


NMR spectrometer on TMC floor platform.

Note on TMC Floor Platforms

TMC floor platforms are still available and are recommended for some applications. Among the applications that benefit from a floor platform are:

- Systems with an automatic sample loader. If the magnet is isolated, the loader must also be isolated.
- Magnets with automated support stands that allow raising and lowering the magnet for sample loading.
- Installations that require "spreading out" the load for building architectural considerations (floor loading).

The floor platforms use the same Gimbal Piston isolator as the posts and system performance is very similar. The major disadvantages of the platforms are:

- They cannot be retrofitted under an energized magnet.
- They are bulky in nature and require professional moving equipment.
- They are generally more expensive than posts.

GENERAL SPECIFICATIONS*

Isolator natural frequency:
Vertical = 0.8 Hz
Horizontal = 1.0 Hz

Isolation efficiency @ 5 Hz:
Vertical = 80 - 97%
Horizontal = 60 - 90%

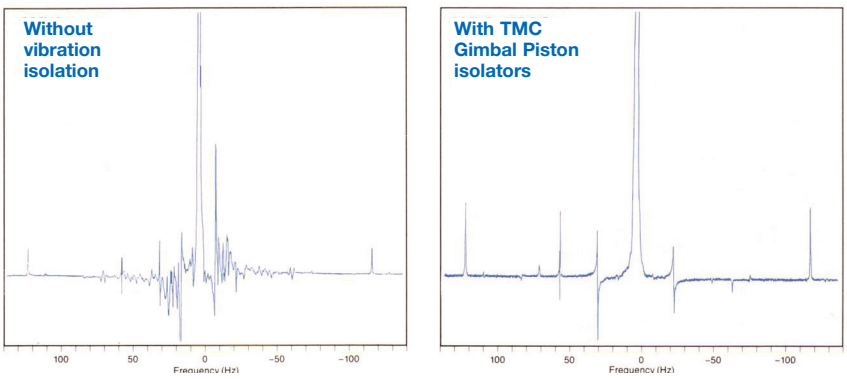
Isolation efficiency @ 10 Hz:
Vertical = 90 - 99%
Horizontal = 70 - 95%

Gross load capacity:
3000 lbs @ 80 psi (3-leg systems, up to 500 MHz narrow bore)
4000 lbs @ 80 psi (4-leg systems, 500 MHz wide bore and 600 MHz)

Utility requirements:
80 psi filtered air or nitrogen, uninterrupted supply.
Compressors are available from TMC if required.

* For a complete discussion of technical specifications, call for the 120-page TMC 2003-2004 General Catalog.

Typical Isolation Performance with TMC NMR Vibration Isolators



Application: 500 MHz Nuclear Magnetic Resonance Spectrometer. These two NMR spectra of a "chloroform hump test" dramatically demonstrate how vibration isolation improves results by attenuating the vibration signal between ±60 Hz. Both spectra were produced by the same NMR spectrometer. The spectrum on the left was generated without vibration isolation; the spectrum on the right, with TMC isolators. In addition, the vertical scale of the right-hand spectrum has been amplified by a factor of approximately 3. The only artifact in the isolated spectrum on the right is the spinning sideband (24 Hz and harmonics), which is normal.