



## Case One

A serviceman from a major U.S. machine builder was convinced that the freestanding isolators installed under his T-type machine would not work; he had always pushed and pulled against the foundation to align a machine.

Prior to the serviceman's arrival, the millwrights had set the machine up using machinists' levels in-line on the ways as well as on parallels across the ends of the ways. The bubbles were centered at all eight locations indicating a precisely leveled machine.

The doubtful serviceman arrived armed with an electronic level. His company's spec was a maximum of six arc seconds of pitch and roll, but his personal spec was even stricter at three arc seconds.

When the serviceman ran the 12,000 lbs. column through its entire range several times, he was startled to find that there was no measurable pitch. However, there was a small amount of roll as the column swept to the rear.

The serviceman from Vibro/Dynamics immediately identified that the millwrights had not quite fine-tuned the support the isolators were providing the machine. By slightly turning the precision adjustment screw of the right rear isolator, the servicemen watched the meter on the electronic level move toward the center. After this simple adjustment, the surprised serviceman was pleased to find the roll was reduced to a perfectly acceptable two arc seconds.

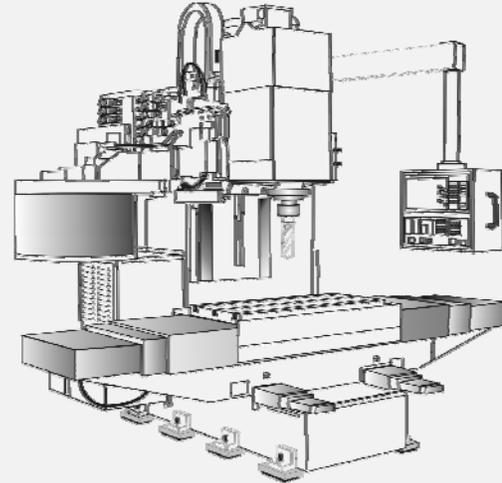
## Case Two

Another plant installed a used American-built T-type horizontal machining center on Vibro/Dynamics Isolators. The machine was precisely laser leveled to very close tolerances. However, the serviceman from the machine builder was not able to obtain machine geometry using his dial indicator and precision square.

He insisted that he had to twist the machine into shape by pushing and pulling against the floor. It was strongly suggested that he look within the machine for the problem for things like worn ways. Nevertheless, he persisted and tried anchoring a toe clamp to the floor to pull the machine down in one corner. This did not work, even after applying enough force to break the floor.

His service department supervisor suggested to him that once a machine is leveled to that degree of fineness, you should never have to change it. Finally, a little investigation within the machine turned up two smashed bearing packs from its previous installation. When those were replaced, the machine geometry was right on. It was, and is, an excellent installation. In addition, an internal problem was discovered and fixed, instead of temporarily hidden by twisting the base.

## FREESTANDING ISOLATORS FOR MACHINE TOOLS



### Anchoring not required!

Most machine tools (e.g. machine centers, grinders, mills, etc.) do not require anchoring to keep them in alignment. As we have already seen, it is not necessary to push and pull against a foundation to twist a machine into alignment. Your machine was precisely machined and aligned when it was built. It is the irregularities of the floor that cause problems!

So why put anchors in perfectly good floors? All this does is nullify plant layout flexibility and turns your floor into a sieve for coolant and oil, which can contaminate the soil under your plant.

For machines that rely on its foundation to act as a structural member of the machine, anchoring is required. A horizontal boring mill with a separate table and headstock is a good example. Nivell® DK mounts (see [www.vibrodynamics.com/english/nivell.html](http://www.vibrodynamics.com/english/nivell.html)) are excellent installation devices for this type of application.

### Leveling & Alignment

A machine must be level, or better stated, flat and untwisted in order to have the machine geometry necessary to consistently make a precision part. It must maintain that geometry both statically and dynamically while performing day after day.

This is where Vibro/Dynamics Isolators pay for themselves! Very fine adjustments are possible due to the resiliency of the isolator's elastomer. When the isolator's leveling screw is adjusted upward, the load supported by the isolator increases. The increased load further deflects the isolator's elastomer, which in turn offsets the adjustment of the leveling screw, resulting in a very fine adjustment.



# VIBRO/DYNAMICS<sup>®</sup> Corporation

technologically advanced machinery mounting systems

## Vibration Control

Vibro/Dynamics does not subscribe to the "one size fits all approach." Each isolator series has a variety of elastomers to choose from, each having different performance characteristics. The isolator is custom-configured after an analysis of machine weight, quantity of support points, weight distribution, rotating speeds of spindles and motors, plus the weight, speed, and acceleration of the moving masses. The highly effective vibration control from these custom-configured isolators leads directly to increases in tool life, accuracy, roundness, and close tolerances as well decreases in chatter and cross talk between machines.

## Uniform Support and Stability

Uniform support is defined as supporting the machine at each mounting point equal to the weight distribution of the machine at that point. This is the optimum support condition.

Although a machine may be level in a static condition, if it is not uniformly supported, it will twist and flex during operation due to the dynamic forces. These same forces can cause jackscrews and other supports to back off overtime and even cause settling and shifting of the foundation or floor because of excessive vibration transmission from the machine.

However, since Vibro/Dynamics Isolators provide excellent vibration control and can be adjusted for uniform support (Providing constant compression on the isolator resilient cushion), the leveling screws do not back off due to the ongoing operating forces. Once your machine is installed on Vibro/Dynamics Isolators and precise machine geometry is obtained, it stays that way.

## Conclusion

Some have tried other freestanding mounts, but have been disappointed in their reliability. If you can get the machine aligned on some brands of mounts initially, the cushions continue to compress and creep, and the machine geometry changes continually.

Other brands are so stiff that they are not precisely adjustable or not engineered well for vibration isolation. Those who have used mounts like that sometimes think that all designs are alike, and therefore are turned off by the entire concept.

With today's competition and push for quality, you cannot afford not to install your machine the best way possible. We said it before, but it is worth repeating. A machine's installation directly influences the machine's overall profitability. It is definitely worth taking a new look at Vibro/Dynamics Isolators; the benefits and savings are there for you.



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