TB001 – Mark 6 Primer Feeder Mounting Discussion

Introduction

The Mark 6 Primer feeder from Viking machinery is a system based on a "Vibrating Bowl Feeder". Bowl feeders are an industrial standard for feeding parts, and when properly commissioned and maintained offer extremely reliable operation. The principle of operation is to generate a resonant vibration between the fixed machine base and the moving bowl assembly. The vibration is induced via springs and an electromagnet to generate the driving forces needed to advance the parts through the feeder.

For the feeder to operate properly, it needs to be firmly attached to a solid mass at the base. This can be a simple heavy mass such as out 'Heavy Base Plate' accessory, or else via an attachment to another rigid point such as a work bench.

We will discuss some mounting options here that have been successfully implemented by users, but feel free to apply the principles discussed here to develop your own solution.

A quick note on heavy base plates: A heavy base plate (either from the factory, or a DIY solution) is usually the easiest way to mount your feeder, but usually needs to be combined with a shelf or riser of some kind. A heavy base plate provides the rigid mass required for function, so can simply be sat on any surface and run, regardless of the stiffness of that surface.

What to Avoid

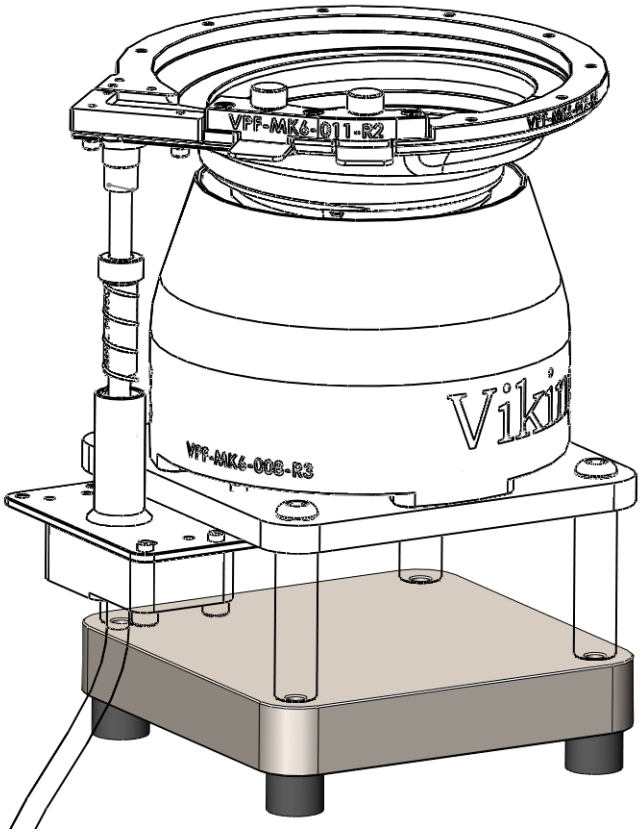
- Springboards. Avoid mounting your feeder to anything that will act like a springboard and dissipate the vibrations. Common culprits here are lightweight shelves such as may be found on the back-board of many reloading benches.
- Not bolted down. Simply sitting your feeder on a surface without bolting it down is unlikely to provide optimum results. At best you will get slow feed rates, at worst your feeder will simply sit here humming and barely moving the primers.
- Wobbly columns. Raising the base plate via riser columns is a simple and effective way to mount the feeder, but it is important that these columns are stiff and do not allow the feeder to wobble around – again dissipating vibrations. Use of materials like PVC pipe will cause problems.
- Trampolines. Like a springboard situation, a trampoline is a mounting where an overly flexible surface is mounted to an otherwise rigid frame. An example of this would be building a rigid frame to mount on, but using a thin timber 'table top' that allows dissipation of the vibrations.

What to Aim For

- Rigid mass. Bolting your feeder to something heavy and solid will give you the best feeding speeds.
- Good stiffness. As a rule of thumb, when the feeder is running you should be able to sit a piece of brass on the mounting surface and it not rattle around.

Case One – The Heavy Base Plate Systems

The factory Heavy Base Plate accessory comprises of a steel plate, 148mm x 148mm x 25mm, weighing in at approximately 4.5kg, which sits on four rubber feet. The feeder mounts to this plate as shown.



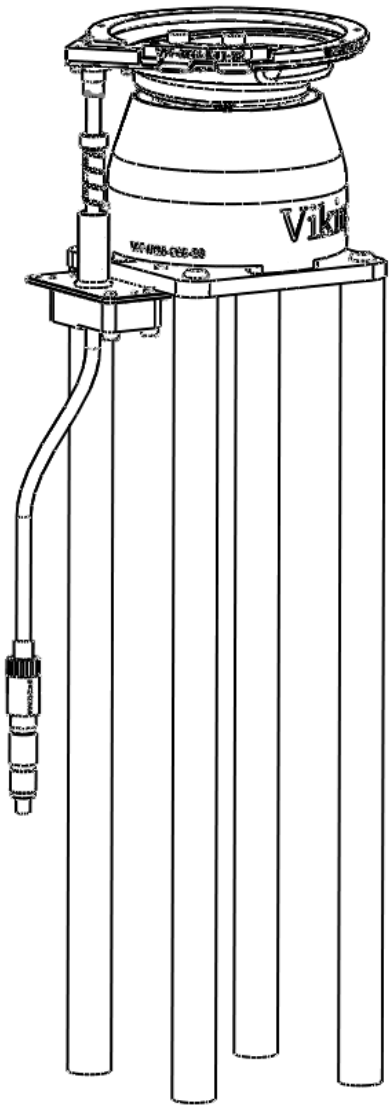
This approach is preferred, as it allows you to simply sit the feeder on a shelf or lightweight riser structure, and then move the feeder around when changing tubes etc. This is particularly useful when sharing the feeder between several machines.

Notes on construction:

- Mass is the critical element here. The steel plate may be substituted for any similar material (like aluminium) as long as the mass is similar.
- It is possible to create a heavy base plate from stacked thinner plates (for example three 8mm plates can be bolted together to form an equivalent mass)
- We have seen customers use a concrete paving stone with drilled holes successfully.

Case Two – The Riser Column

Use 4x heavy steel pipes to space under the bottom plate of the feeder to the bench. Four tie rods (usually allthread / thread rod) and nuts are then used to bolt through the feeder, columns and the bench. This is a very simple approach and when conducted properly gives extremely good results with low cost and complexity.



Notes on construction:

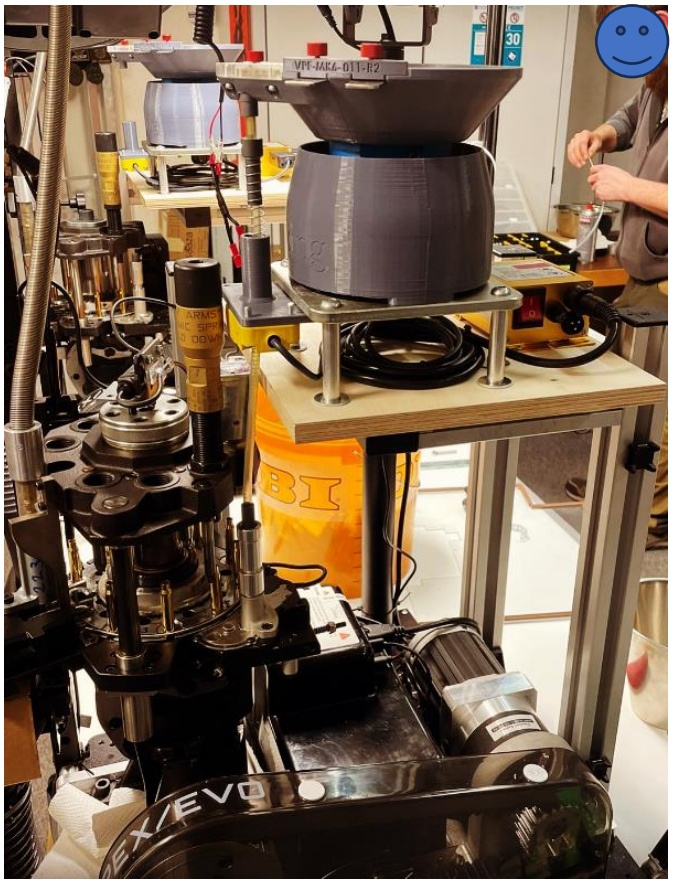
- Heavy walled 1” steel pipe is a good option for the columns. If you wish to substitute sizes, go to a larger diameter in preference to a smaller one.
- Square walled pipe is an acceptable substitute.
- Always use large washers on the bottom of your work bench.
- If you feel that your mounting is too high and therefore a little wobbly, add support between the columns for stiffening.
- Solid round bar with drilled and tapped end holes is an excellent substitute for pipe. If you have the ability to produce this, it will be the best solution.
- Be cautious of trampoline effects where the unit mounts to your bench.

Case Three – The Rock-Solid Shelf

It can be convenient to mount your feeder from the back board of your reloading bench. If you choose to use a shelf, we recommend ensuring that it is suitably robust by topping it with a surface that is equivalent to the heavy base plate (or using a heavy base plate in conjunction with a lighter shelf). Be cautious of the strength and thickness of your backboard to avoid trampolining, and we recommend using a heavy duty, braced angle bracket to support your shelf.

Case Four – The Engineering Project

This approach comes from Sascha Schietz in Austria (an authorised reseller and integrator, and all-round reloading legend). A rigid frame is built to accommodate the feeder and avoid the customers autodrive unit. In this set up, 4040 aluminium T slot extrusion is used as it allows easy adjustment, particularly in the vertical axis to easily accommodate adjustments in tube length.



In principle, the frame can be built from any suitable material. Make sure you use something that is strong and stiff to avoid wobbling.

Note that the timber top shelf is 20mm plywood as a minimum thickness, and is securely screwed to the frame.