

Addendum to the MRI manual -702131 & 702130

The remote mechanism box is built with a minimal amount of ferromagnetic components, and can be positioned relatively close to the bore of a MR imaging systems magnet . As an added measure, we have included a hold- down bracket kit, which will allow the mechanism box to be secured to an adjacent work table or non-ferrous platform. The remote mechanism box can be used around medium and high strength magnets.

This MRI syringe pump is intended for use in and around strong magnetic fields where the actual field strength is less than 0.1 tesla or 1000 gauss. For your installation, the mechanism box should be located in a position where the magnetic field strength drops to below 0.1 tesla.

The actual magnetic force exerted on an object is determined by its distance from the magnet bore and its orientation to the magnetic field lines. For an unshielded 2.0 tesla horizontal bore magnet, the remote mechanism box can be positioned a few feet and to one side of the bore. The mechanism box should never be in direct line of the bore.

The control box should always be kept at least 20 feet away from the magnet. Some users locate the control box in an adjacent / control room. Running the remote cable through a bulkhead or panel can be difficult because of the size of the cable and the need to use a filtered panel mount connector – Amphenol is a supplier of RF connectors. . The remote cable used for this product is shield twisted pairs of 22 gauge wire. In some cases, an imaging artifact caused by RF interference, has been seen. This can be caused by the location of the remote cable and or the lack of shielded panel mount connectors.

In some cases the mechanism box can be placed too close to the magnet and the result will be that the stepper motor has lost its magnetism. This will cause the motor to stop turning and a stalled message will be displayed on the control box display. if this happens the mechanism box must be returned to Harvard for repair / replacement of the motor.

The best way to approach where to place the mechanism box would be to start 8 – 10 feet away from the magnet and slowly approach the magnet with the mechanism box held firmly in your hands. Once you feel the magnetic pull on the box you should stop and mount the unit to a non ferrous platform. Knowing your field strength, and the distances away from the magnet that they are, will also help determine where to place the remote mechanism box. Please take every precaution to avoid placing the mechanism box too close to the magnet.

The highest strength magnet that has been tested with our MRI unit is a 9.4 tesla shielded magnet. Our MRI syringe pump is not for clinical use on humans and is intended for animal research.