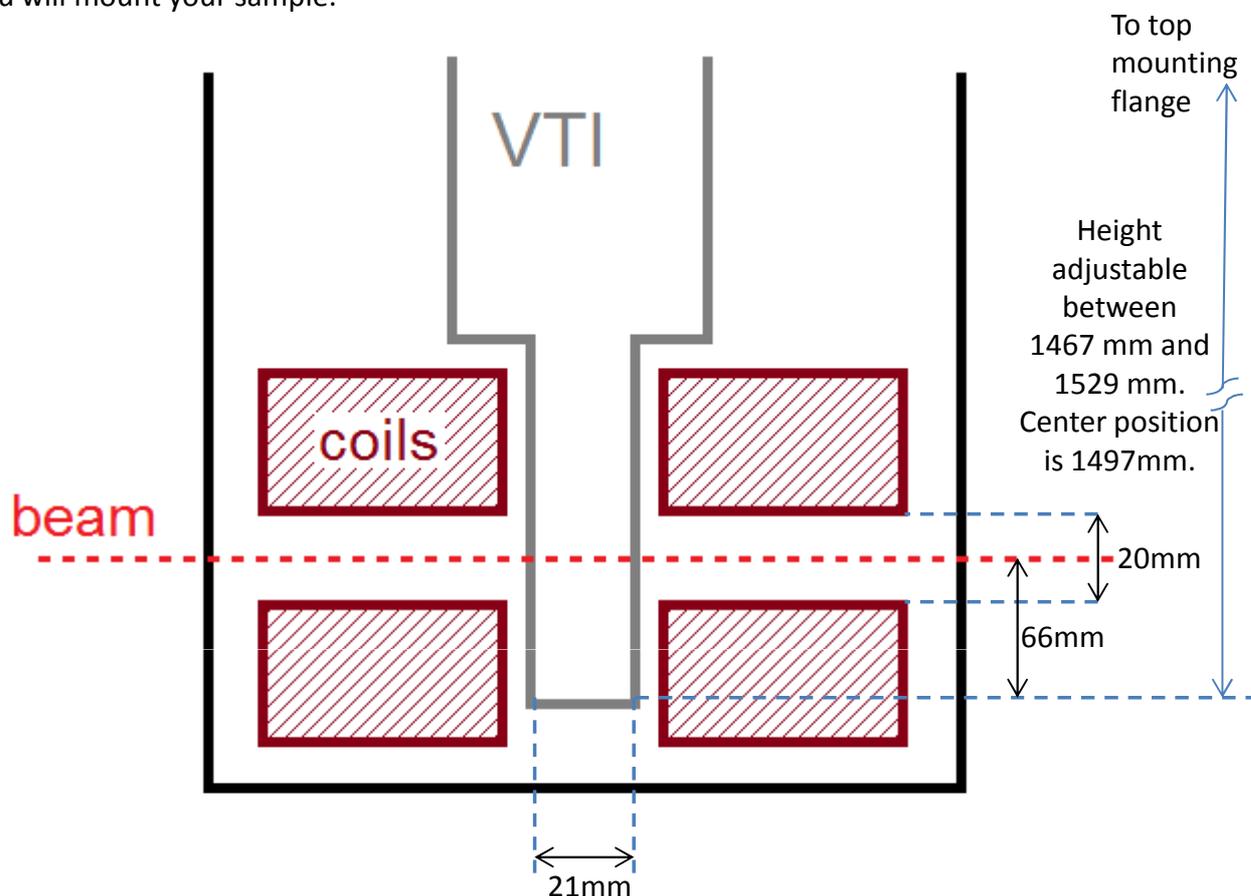


Sample mounting and size restrictions

The bore of this magnet is quite narrow, so samples need to be sufficiently small in order to fit. The cartoon below is not to scale, but contains all the dimensions you need in order to plan how you will mount your sample.



Actual VTI diameter is 21mm. When using the "1K stick" it is *highly* recommended that you make the diameter of your sample/mount **15mm or smaller** to avoid damage to your sample when loading.

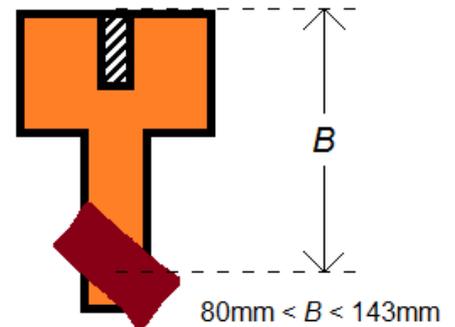
If using the dilution insert, then the diameter of your sample/mount should be **less than 10mm** (the actual diameter of the dilution unit IVC is 14mm).

Most experiments use the "1K stick." If you need the dilution stick, refer to the appropriate section later in this manual. The 1K stick has a 5/16-18 male thread for sample attachment, therefore your sample holder should have a female 5/16-18 threaded hole. Height adjustment is done by turning the brass knob on the motion jig that rides around on top of the magnet. For more detail, see the next page.

Sample mounting and size restrictions

Guidelines for making your **SAMPLE MOUNT** when using the **1K STICK** (stick is 1385mm long)

- Your holder must have a female 5/16-18 threaded hole or bolt for attachment to the 1K stick.
- It must be between 82 mm and 134 mm long, as measured to the sample (B). If you must use a sample holder less than 80mm, you will need an adapter.
- It must not protrude more than 65mm below beam center
- Diameter of holder and sample should be less than 15mm
- It can be made of aluminum or copper.

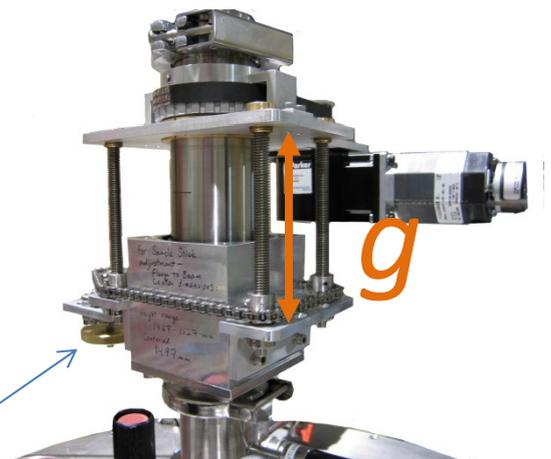


If using the **dilution fridge**, refer to section “dilution fridge particulars.”

Height adjustment

To adjust the height of your sample, you will need to rotate the brass knob on the motion jig pictured to the right.

- 1) Attach your sample to the 1K stick
- 2) Measure the distance h in millimeters from the flange to the center of your sample
- 3) Calculate “the gap” $g = h - 1419$ mm
 - ❖ If $g < 48$ mm or $g > 100$ mm, your sample cannot be centered in the beam. If the height is too short, you can use adapters to get within the acceptable height range. If that’s not possible, You need to mount it on a different holder.
- 4) Adjust the height of the motion jig so that the gap between the plates = g (by turning the brass knob).
- 5) Mark the crystal orientation on the stick with a sharpie.
- 6) Once the magnet is on instrument, you can use the neutron camera to verify that your sample is at beam center. If it is not, turn the brass knob as needed.



For example:

Let’s say you attach your sample to the stick and measure the distance from the flange to sample center to be $h = 1497$ mm.

Now $g = h - 1419$ mm = $(1497 - 1419)$ mm = 78 mm

Thus you adjust the gap between the plates on the motion jig to be 78 mm.