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VWM-S-1W assembly

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This section describes how to install a wire on a sensor

Requirements and tools

1. All new sensors are delivered with a wire pre-installed. Its tension is arbitrary. Its purpose is to allow immediate functional check of the sensor.
2. To install new wire, its length should be approximately 60mm longer than the sensor. Wire must be clean without visible damage or bending.
3. Necessary tools:
   - Screwdrivers with hexagonal ball heads 1.5mm, 2mm and 2.5mm
   - Tweezers
   - 2-3 surgical-style clamps
   - Scales with range ≥0.5kg
   - Set of weights to hook to surgical clamp
   - Magnifying glass
   - DVM
4. All sensors are thoroughly cleaned for UHV before shipment. A Residual Gas Analysis is attached. If sensors are to be used in UHV, it may be necessary to clean them again after manipulation. Laboratory-standard UHV cleaning techniques can be applied.

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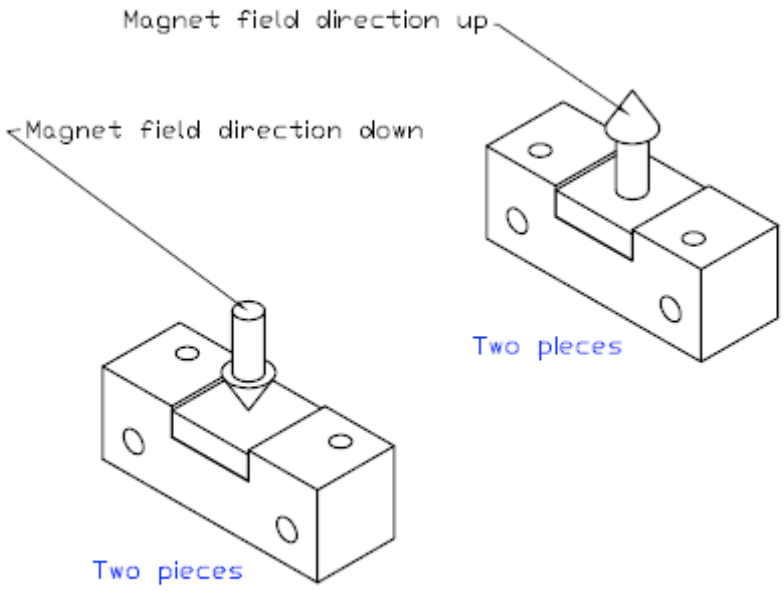
Step 1

Prepare a clean table without any magnetic object.
Carefully install Samarium-Cobalt magnets into magnet pole slots, field orientation as shown bellow.

Magnets are fragile: Don't let them fall!

Magnets are very strong: Keep them away >15 cm from each other and other magnetic object!



Step 1

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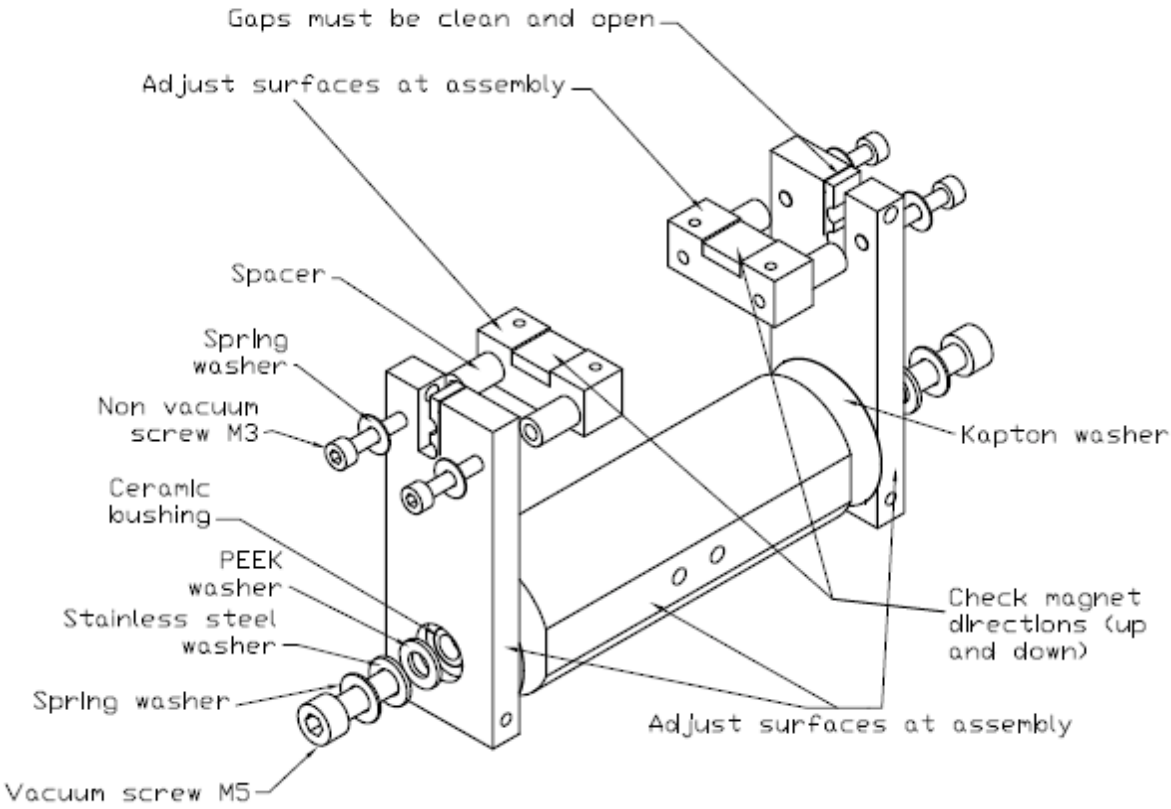
Step 2

VWM assembly



Step 2

All parts must be clean.
Gaps on the clips must be opened.
Test that clips are electrically isolated.

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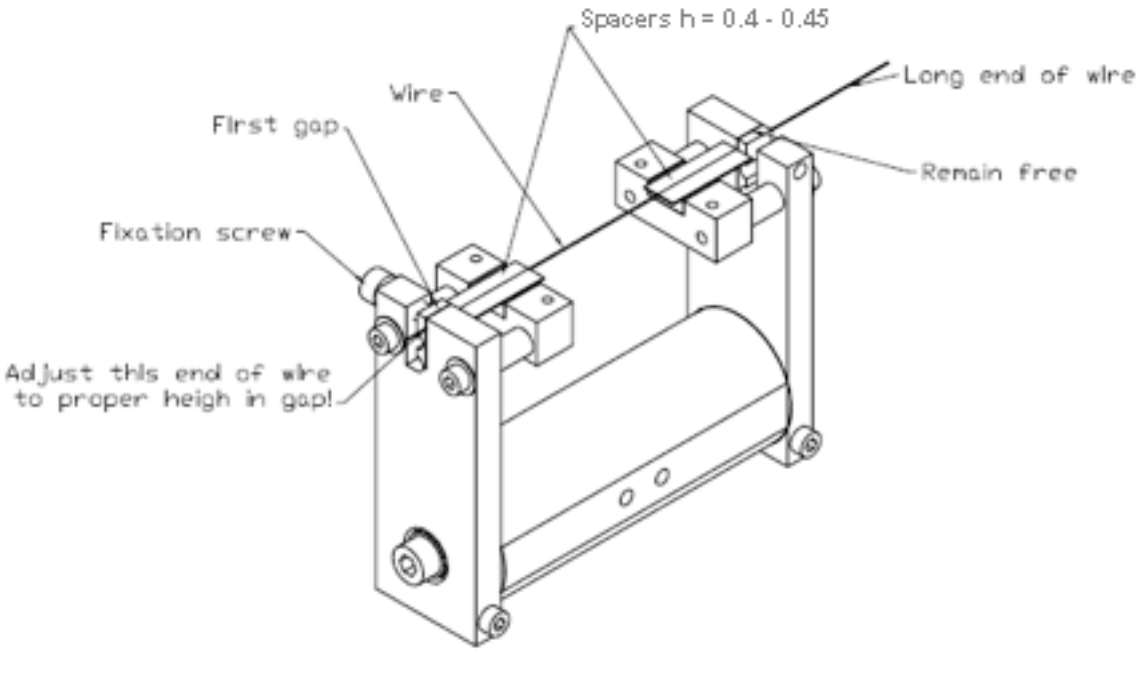
Step 3

To install wire, use spacers of thickness 0.4-0.45mm to place the vibrating wire at the center of the magnetic gap. It would be better to have these spacers made of a magnetic material, to maintain them more easily when the VWM is in a vertical position (see next step).

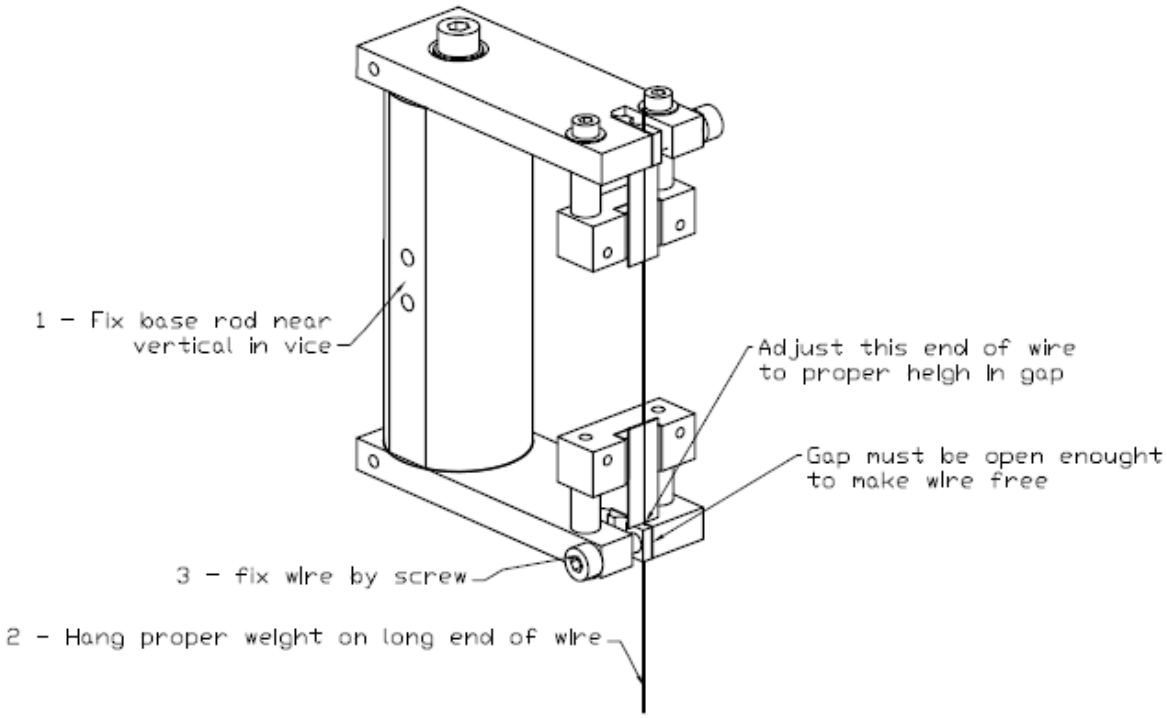


Step 3

Screws must be tightened firmly, with care.

Step 4

Hold the VWM as shown bellow. Check that the down clip gap is open enough to keep the wire free. Hang the appropriate weight at the end of the wire using a surgical-style clamp. The value of the proper weight can be found by running the VWM_Choice_Rev2.0 program.



Step 4

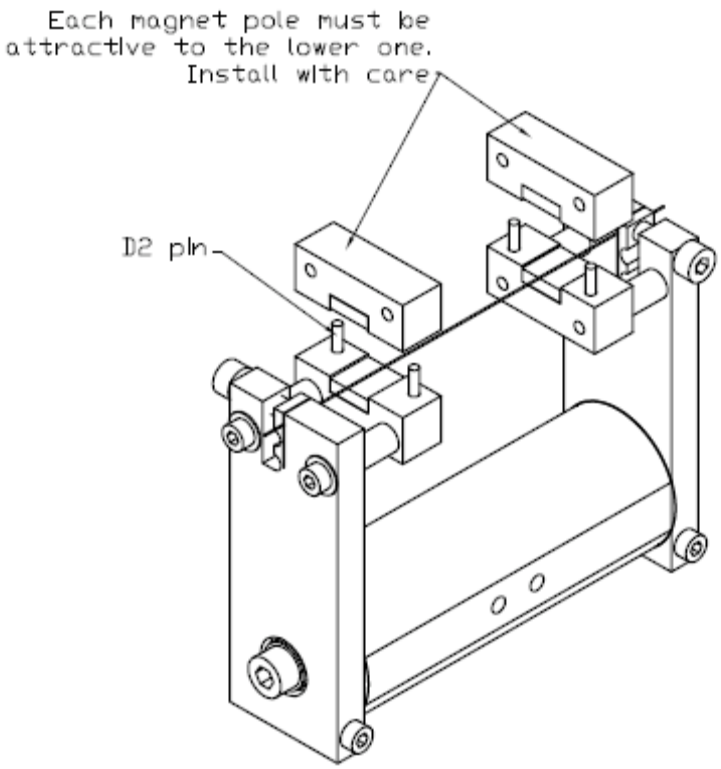
Screws must be tightened firmly, with care.

Carefully remove the spacers by shifting them along the wire.

Once the wire assembly is completed, cut the extraneous wire length.

Step 5

Cover each magnet pole with its corresponding part, it must be attracted to the lower one.



Step 5

Check with magnifying glass that the wire passes through the center of the magnetic gaps.

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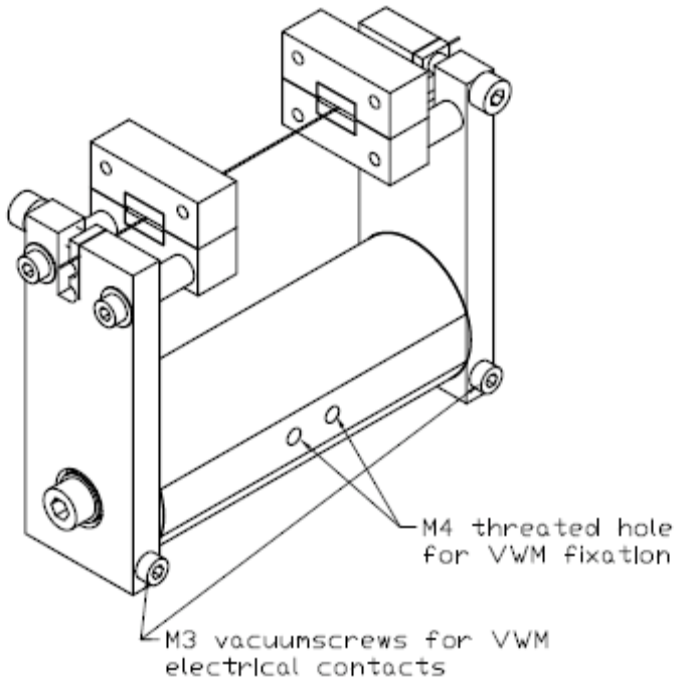
Step 6

VWM-S-1W assembly is now complete.



Step 6

Measure the wire resistance between the clips using the DVM. Its value must be in range with the wire resistance calculated by the VWM_Choice_Rev2_0 program.

Connect sensor wires to VWM by two M3 vacuum screws on the clips sides.

Four M4x6mm threaded holes are provided for VWM fixation. Distance between holes is 10 mm.