

JANDEL ENGINEERING LTD.

Hand Applied Probe for High Temperature Use

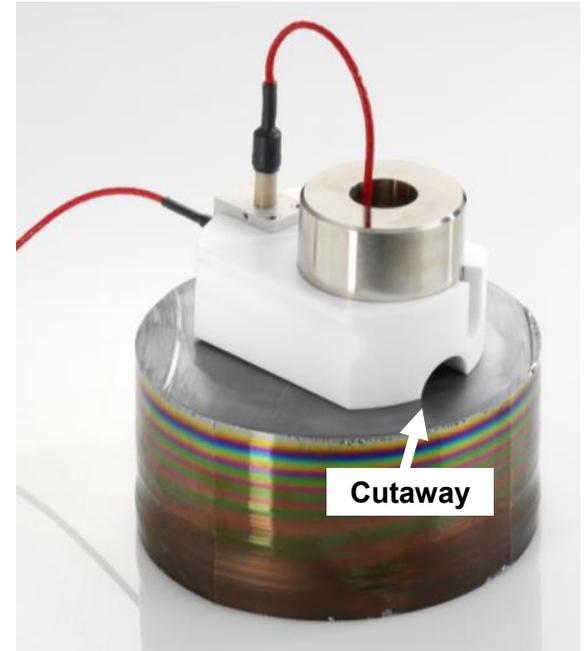
Operating Instructions:

As shown in the instructions for the standard Hand Applied Probe:
"The probe head should be installed so that its acrylic insulating pad (adjacent to the projecting probe needles) lies in the same plane as the lower PTFE (Teflon) surface. Rotate the probe head so that its needles lie at right angles to the longitudinal axis of the Teflon holder, and clamp firmly with the two red screws. To present the probe head to the specimen it is best to make contact with the rear end of the block (the beveled end of the Teflon / PTFE body on the end where the switch is located) and then rock the block downwards so that it effectively pivots about the rear. In this way the probe points will retract without scrubbing on the specimen surface. The actual position of the probe points can be seen via the cutaway."

Standard Acrylic Nosepiece Pad



Jeweled Nosepiece Pad



Cutaway



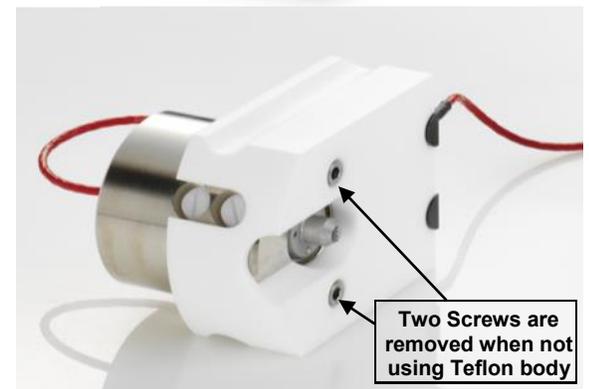
Cylindrical probe head

There are two versions of the high temperature Hand Applied Probe, the HAP-HT1 and the HAP-HT2.

The **HAP-HT1**, is for use at temperatures up to 200°C in an oven or on a hot-chuck. This model has the following modifications from the standard model, i.e.:

- 1) The toggle switch which is used to control the flow of current to flow to the probe is removed.
- 2) The acrylic insulating pad on the Cylindrical probe nosepiece is replaced with a synthetic ruby jewel.
- 3) The Cylindrical probe is built with high temperature solder.

There is a nominal fee for the upgrade to the HAP-HT1 version.

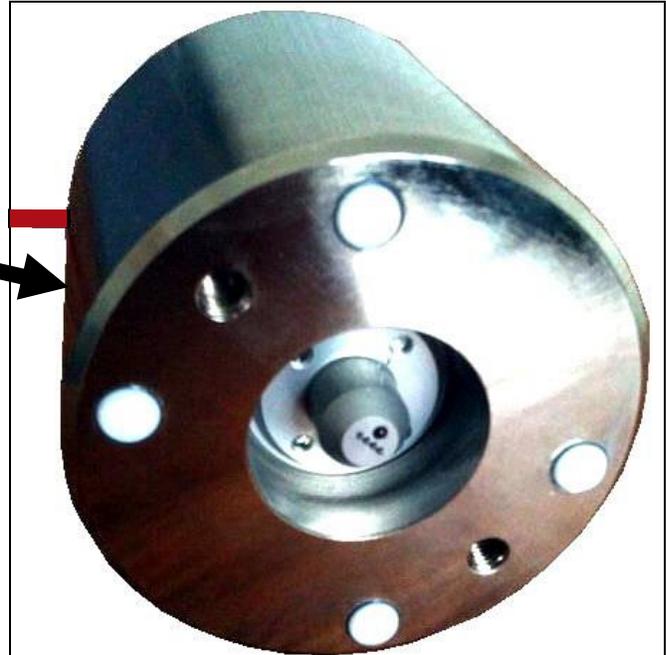
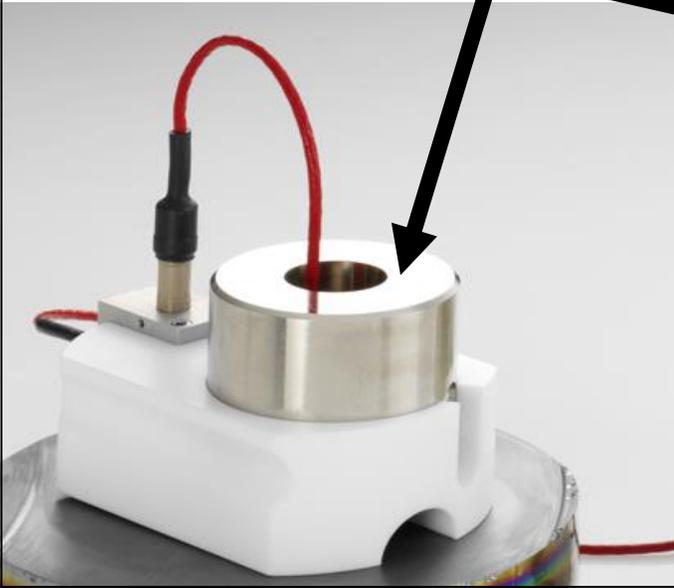


Two Screws are removed when not using Teflon body

The **HAP-HT2**, is for use at temperatures up to 250°C in an oven. This model has an additional modification in which the large heavy cylinder which fits into the white Teflon body, and which the Cylindrical probe is mounted into, can be separate from the white Teflon body so that it can be placed in an oven or onto a hot-chuck without the Teflon body. This Teflon body can be removed by undoing the two screws on the bottom as shown in the photo above. This enables the Teflon body to be removed. An allen key for removing the screws is included.

In this model, the **HAP-HT2**, the bottom of the large cylinder is permanently fitted with four Macor / ceramic stand-offs so that the nickel-chrome plated cylinder does not make electrical contact with the material under test. The white Teflon body is additionally machined so that when the heavy cylinder is replaced back into the white Teflon body, there are recesses for the Macor stand-offs to fit into. When using this configuration, in which the white Teflon body is removed, the probe needs to be adjusted so that the tip of the ruby ball on the probe nosepiece is in the same plane as the bottom of the four insulating Macor pads. In this way the probe tips will be fully retracted such that the factory set spring load is applied when the unit is brought into contact with the material being tested.

Shown here is the heavy cylinder which houses the Cylindrical probe, and which can be removed from the Teflon body of the Hand Applied Probe for use at temperatures up to 250°C in an oven.



Bottom view of heavy cylinder with four Macor / ceramic stand-offs which keep the cylinder from contacting the material under test. The cylinder can be removed from the Teflon body for use at temperatures up to 250°C in an oven or on a hot-chuck. The Teflon body is machined so that the permanently installed Macor/ceramic standoffs will fit properly when installed back into the Teflon body.



Cylindrical probe head

Information about the Cylindrical four point probe head can be found here:

<http://www.fourpointprobes.com/cylindri.html>

Since there is no current flow switch on either version of the high temperature Hand Applied Probe, the flow of current should be left off until after the tips have been placed in contact, and turned off again before the tips are brought out of contact. This will prevent sparking when the probe tips are in close proximity to the material being tested.