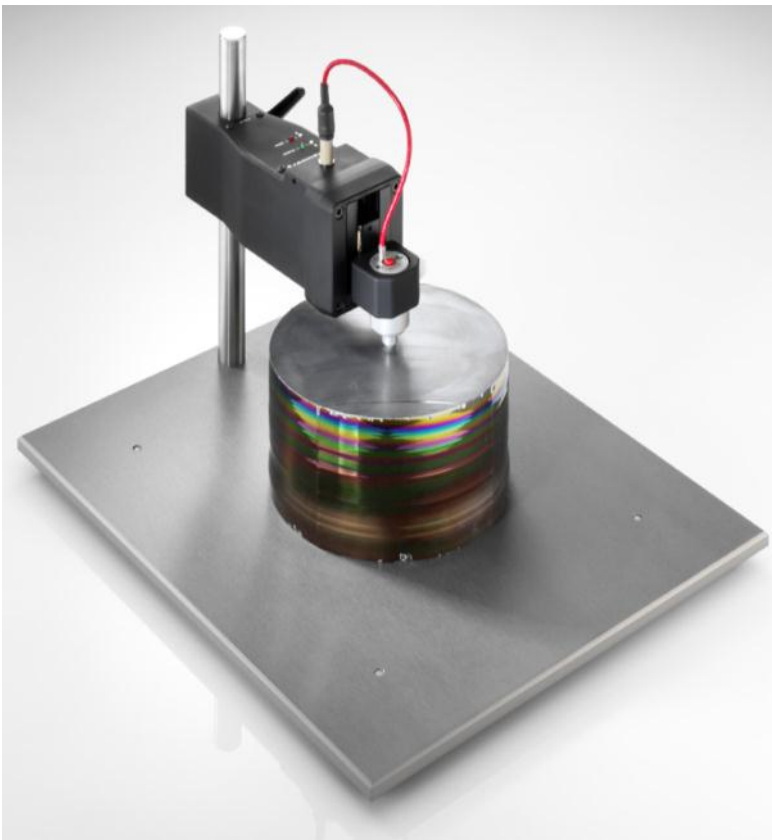


JANDEL ENGINEERING LTD. AFPP Automatic Four Point Probe Arm

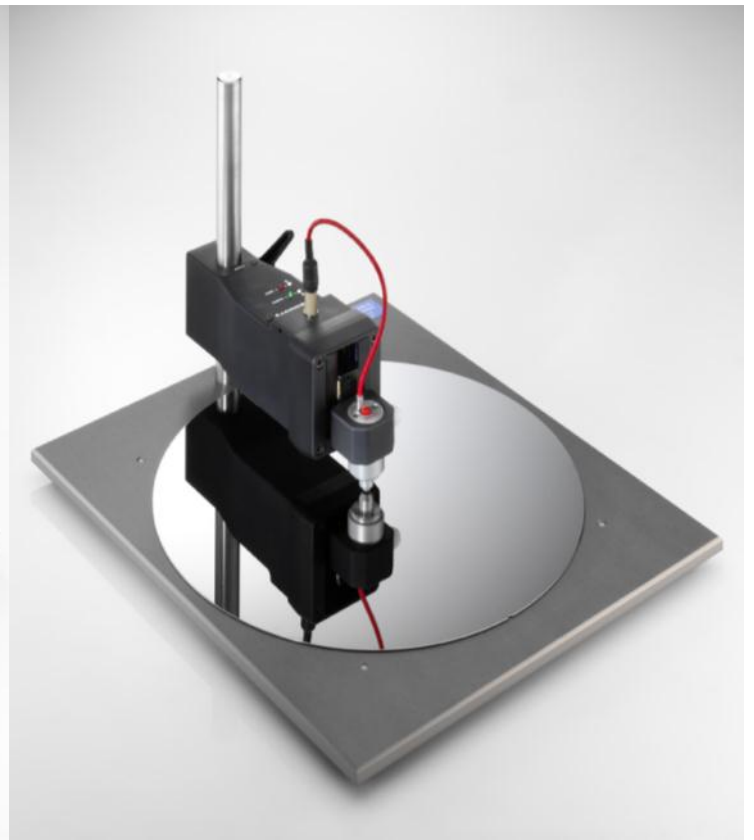


RM3000 Test Unit

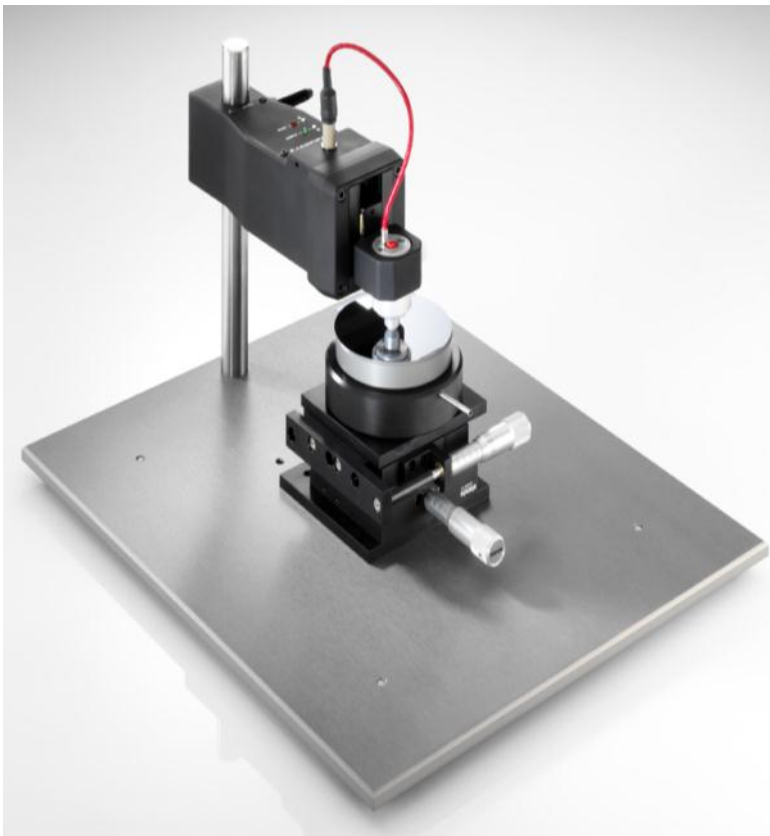
When the 'sample' button is pushed, the probe will move down to the sample, stop, and activate the switch for the current to flow. When a reading has been made, the 'Home' button can be pressed to raise the probe slightly so that the sample can be moved. If the 'Home' button is pressed again, the probe will return to the highest position. The buttons can also be set by the user to act as 'jog' buttons if preferred to jog the probe up and down when a button is pressed. Please see pages 3 and 4 for more information.



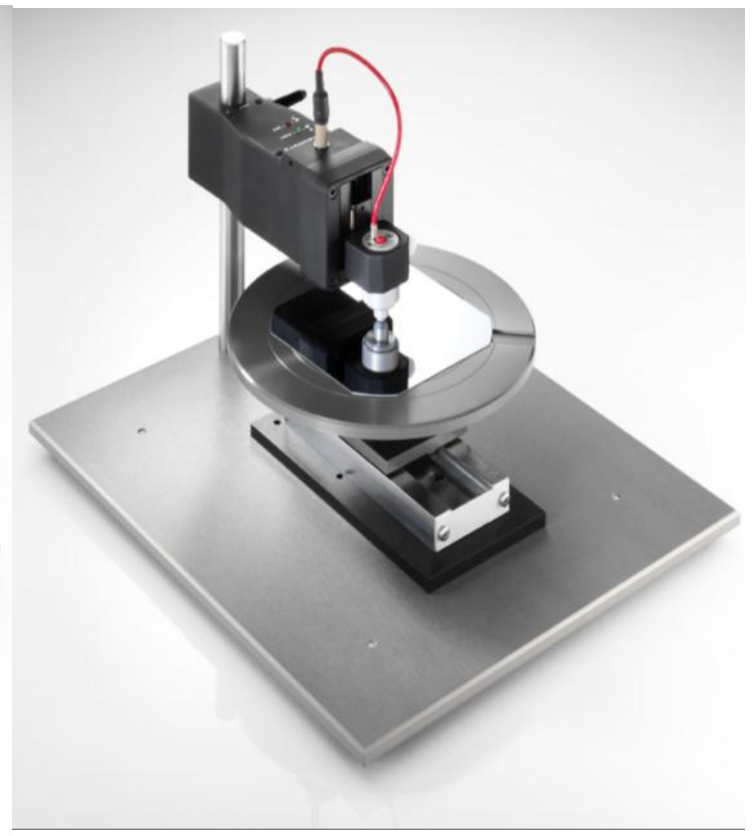
AFPP Arm on Multi Height Probe with Arm in Elevated Position Probing an Ingot



AFPP Arm on Multi Height Probe with 300mm Base, Probing a 300mm Wafer



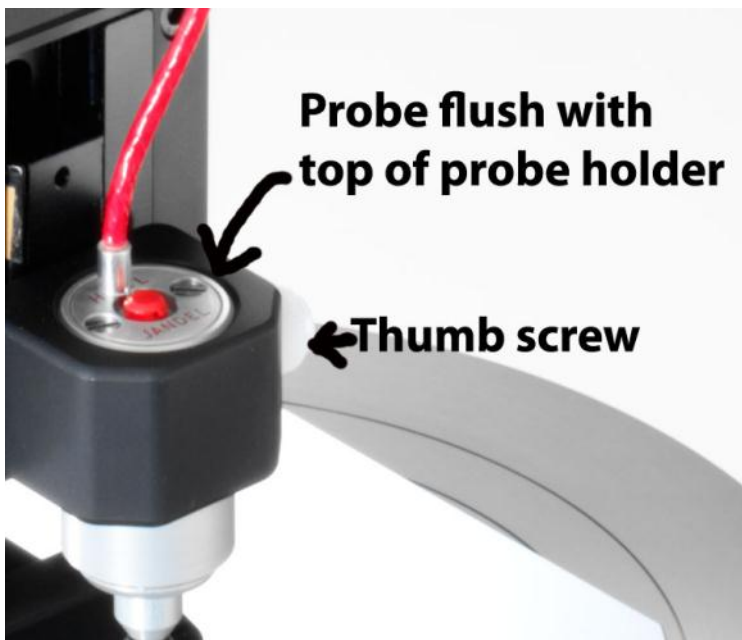
AFPP Arm on Multi Height Probe fitted with Micro-PT Stage Probing a 3" Wafer.



AFPP Arm on Multi Height Probe fitted with Multi-PT8 Wafer Stage

Operating the AFPP with the RM3000 Test Unit

1. WITHOUT THE PROBE HEAD INSERTED and supporting the body of the AFPP, loosen the black handle with red button at the rear and slide the AFPP down the column until the bottom of the AFPP is approximately 2 to 3cm (1/2" to 1") above the sample to be measured. Use the black handle with red button to tighten the AFPP in position.
2. Connect measurement lead and AFPP power lead between the rear of the AFPP and the rear of the RM3000. The sockets on the RM3000 are marked 'Probe' and 'AFPP' respectively. The supplied power supply with transformer is not required for operation of the AFPP if it is being used in conjunction with the RM3000.
3. Switch on RM3000 and wait for it to initialize. The display of the RM3000 will briefly show 'Probe connected' and the AFPP will home the probe head holder (move to the top limit of travel).
4. Insert the probe head into its holder until the top of the probe head is flush with the top of the holder and tighten thumb screw



5. Tighten thumbscrew with screwdriver to prevent probe moving in holder during use
6. Select the probe load based on the probe head you are using (often $\leq 100\text{g}$). Press 'Sample' and make sure the probe needles fully compress on the sample. If they do not compress fully try pressing the load button to go 1 setting higher. Check the probe needles fully compress (there may be a delay of around 1 second after contact for $\leq 150\text{g}$ and $\leq 200\text{g}$ settings before the needles compress). Press 'Home'.
7. With the probe head and sample in place input a current and press 'FWD' or 'REV' to make a measurement. The AFPP will lower the probe head to the sample and then allow current to flow. The current can be changed to find the most suitable current while the probe is in position on the sample, and the reading checked for validity using the FWD and REV buttons.
8. Pressing STBY raises the probe head from the sample slightly so that the sample can be moved. Pressing FWD or REV will again lower the probe head in order for a measurement to be made.
9. If the sample is of unknown value then while the unit is in Standby the STBY button can be pressed and the probe will initiate an Autorange function to attempt to assess a suitable current – further information on this feature is in the RM3000 manual.
10. If samples of a different thickness are to be measured then the 'home' button on the AFPP can be pressed and the probe will return to home, ready for the AFPP to be set up again as described herein.

Manual operation

If required, the AFPP can be used stand-alone in which case the supplied power lead is required to power the unit. Set up in this situation is still as per steps 1-10 above.

The AFPP buttons operate as follows whether powered by the RM3000 or by the power lead.

Standard mode

1. Pressing 'sample' will lower the probe head onto the sample and allow current to flow in order to make a measurement, this is whether the probe is at its home position or slightly raised from the sample.
2. Pressing home will raise the probe head in order to move the sample.

Possible errors

'Bouncing' of the probe head from the sample or a loud 'ticking' noise on probe contact with the sample –

1. Check that the probe is tightly held in the holder with the thumb screw.
2. Try adjusting to another probe load setting
3. Try raising or lowering the whole mechanism slightly

IT IS RECOMMENDED NOT TO OPERATE THE AFPP WITHOUT A SAMPLE BELOW IT