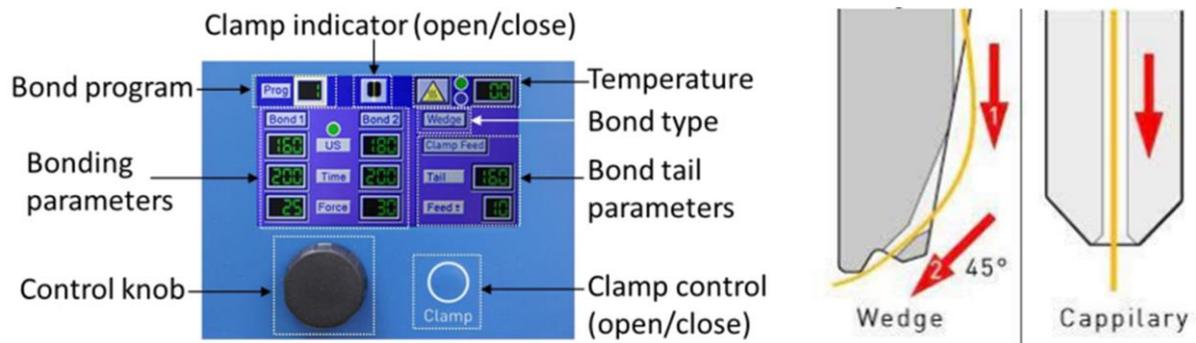


# SOP

## Standard Operating Procedure: Wire bonder (TPT HB05)\_Gold

### Instruction for operators

1. Remove the cover. Switch on the main switch for the instrument and light.
2. Switch on the power from back of the instrument. This will start the instrument and software will be initialized.
3. Check whether the correct tool/tip (ball or wedge bonding) is installed. If, not please change it. Only SOs are allowed to change tools.



4. Select the appropriate program for bonding in the software interface. Make sure that the standard bond parameters (force, US, time, temperature) are set properly. Do not change parameter values outside the permissible range.
5. Place the sample on the sample holder and fix it properly. Adjust light and focus microscope on the sample.
6. In case of ball bonding, create a ball before starting the bond-1 procedure by lifting the Z-control lever slightly up. Do not follow this step for wedge bonding.
7. Use Z-control lever to bring the tip down to the position of the first bond and gently press on the surface till you hear the sound of bonding. After this step, the clamp will be released and the program indicator will shift to bond 2.
8. Pull the Z-control lever gently up and use X-Y control to bring the tip to the position of the second bond.
9. Again, bring the Z-control lever down and press gently on the surface. Once you hear the sound of second bond, pull up the tip smoothly to allow wire tail to come out of the tip for next bonding.
10. Make sure that the bonding procedure is complete properly and the software panel shows bond 1. In case the bonding could not be completed properly, press the red reset button on X-Y controller to reset the program.
11. In case the wire is not visible after completion of bonding procedure, press 'down' button to feed wire through the tool.
12. Repeat steps 6-10 for all bonds. Make sure that the tool/tip only touches smooth metal surfaces, otherwise it can get damaged.
13. After completion of the process, remove the sample.
14. Switch off power from back of the instrument.
15. Switch off the main supply for the instrument and light. Place the cover back properly.

### **Process for installing the wire (Only for SOs)**

Follow this procedure in case the wire thickness needs to be changed or if the wire breaks.

1. Remove the sample holder from below the tool.
2. Open clamp from the instrument surface if wire is already installed. This will release the wire.
3. Pull back the wire completely and remove the lid from the holder of the wire spool.
4. Gently remove the spool and wrap the extra wire back.
5. Use green sticker to hold the end of the wire. This is used as an indicator.
6. Get the wire spool to be installed and remove its end near the green sticker. Place the spool such that surface with the green sticker faces upward.
7. Put the wire through the glass tube and fix the wire spool in its holder.
8. Use the procedure to change the tool described below after changing the wire.
9. After setting the wire properly, push back the clamp in place and close it by pressing the clamp button on the interface.
10. Put the sample holder back in place.

### **Process for changing the tool (Only for SOs)**

Follow this procedure to change the bond type or after changing the wire

1. Remove the sample holder from below the tool.
2. Open clamp from the instrument interface. This will release the wire. Remove the clamp by pushing it outwards.
3. Remove wire from the tool by pulling up.
4. Place a small foam sheet below to protect the tool/tip in case of slip.
5. Hold the tool/tip with tweezers and use the tpt screwdriver to remove the screw on the right of the tool to release it. Tool is very sensitive and can be damaged irreversibly if dropped.
6. Put the removed tool in appropriate casing, and take the required tool out. There are no indicative markings on the tool, so be careful while replacing the tools.
7. Place the tool in place using tweezers and tighten the screw using the tpt screwdriver gently till you hear the click.
8. Now put the wire in the tool from the top. In case of wedge tool, secondary step for inserting wire at 45° is needed.
9. After setting the wire properly, push back the clamp in place and close it by pressing the clamp button on the interface.
10. Remove the foam and put the sample holder in place.