CLAIMS

What is claimed is:

1. A die heater, the die heater comprising:

a central, heater portion configured to heat; and

a plurality of rods fixed to said central, heater portion, said rods being configured to allow said central heater portion to be retained,

wherein said plurality of rods are evenly and concentrically disposed about a central axis of the die heater.

2. The die heater of claim 1 wherein said plurality of rods serve as a flexure mount.

3. The die heater of claim 2 wherein said rods are configured to be retained by set screws.

4. The die heater of claim 2 wherein said rods are configured to supply power and ground to the die heater.

5. The die heater of claim 1 further comprising a trough in communication with a vacuum source, the trough being surrounding a projection of substantially the same height as a remainder of a face of the die heater.

6. The die heater of claim 5 wherein said projection is circular and centrally disposed on said die heater.

7. The die heater of claim 5 wherein said projection is non-circular and centrally disposed on said die heater.

8. The die heater of claim 1 wherein said die heater is configured to retain removable tips that are configured for picking and placing of a specific die or dies.

9. The die heater of claim 8 wherein said die heater is configured to gimbal.

10. A die bonding system, the system comprising:

a die heater comprising a central projection surrounded by a trough, the die heater further comprising at least two vacuum ports in communication with a vacuum source, a first vacuum port disposed with the trough and configured to retain a tip and a second vacuum port disposed substantially centrally on said central projection, the second vacuum port being configured to provide vacuum to the tip; and

a plurality of pockets configured to retain die-specific tips for use by the die heater, the die heater being further configured to pick and return tips to pockets,

wherein the tip is configured to interface with a die or dies to be picked and placed and retain them by vacuum.

11. The die bonding system of claim 10 wherein said tip further comprises at least one fiducial.

12. The die bonding system of claim 10 wherein said tip further comprises at least two fiducials.

13. The die bonding system of claim 12 wherein the tip further comprises at least one alignment feature configured to provide for rough alignment between the tip and die heater.

14. The die bonding system of claim 13 wherein at least one of the plurality of pockets further comprises a dowel configured to interface with and restrict the motion of a tip retained thereby.

15. The die bonding system of claim 14 further comprising at least one camera assembly configured to assist in calibration of alignment of said die heater and tip during picking of a tip from one of said plurality of pockets.

16. The die bonding system of claim 15 wherein the camera assembly comprises at least one up-look camera and at least one down-look camera.

17. A die bonding system, the system comprising:

a die heater comprising a central projection surrounded by a trough, the die heater further comprising at least two vacuum ports in communication with a vacuum source, a first vacuum port disposed with the trough and configured to retain a tip and a second vacuum port disposed substantially centrally on said central projection, the second vacuum port being configured to provide vacuum to the tip;

a plurality of pockets configured to retain die-specific tips for use by the die heater, the die heater being further configured to pick and return tips to pockets; and

a plurality of rods fixed to said die heater, said rods being configured to allow said die heater to be retained,

wherein said plurality of rods are evenly and concentrically disposed about a central axis of the die heater, and

wherein the tip is configured to interface with a die or dies to be picked

and placed and retain them by vacuum.

18. The die bonding system of claim 17 wherein said plurality of rods are configured to supply power and ground to the die heater.

19. The die bonding system of claim 17 wherein said tip further comprises at least one fiducial.