Dave’s 12 important points for successful wirebonding.

Realize that wirebonding is these 12 things. Your success/failure is PREDETERMINED before you even sit down at the bonder by whether ALL 12 of these items have been correctly addressed:

1. Bonder capability
2. Bonder sequence (parameters: force, ultrasonic power, duration of power application, etc.)
3. Bond temperature
4. Capillary/Wedge design
5. Wire size and metallic composition (Its NOT 100% Gold.)
6. Pad dimensions
7. Pad metal layering and composition of layers including allowable contaminate levels.
8. All surrounding architecture, so your wedge or collet has the correct angle of approach and you don’t crash into walls or other components
9. Material that is UNDER the pad. This is a BIG Factor. If your bond pad is deposited down over a polymer, your process window is VERY small.
10. Pre-bonding pad cleaning process.
11. Gaseous environment of the bond process. For all bonds that are NOT Au-Au, this environment is picked off an “Ellingham-Richardson-Jaffes” Thermodynamic diagram.
12. Tooling to secure your package to the Wirebond heater stage.