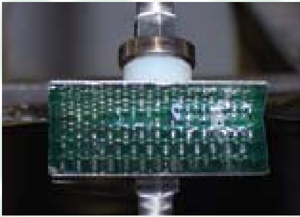
BGA Reballing



The worldwide conversion to lead free (Pb-free) electronics has resulted in a change to the solder ball alloy used on BGA packages from tin-lead (SnPb) to tin - silver - copper and other Pb-free alloys. This creates a reliability problem in high reliability electronic systems that use tin-lead materials and processes to eliminate tin whiskers and avoid Pb-free solder joint reliability problems.

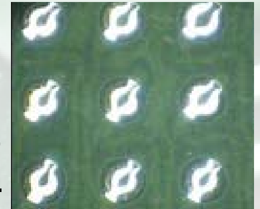
The traditional whisker-free SnPb reflow process is not compatible with Pb-free Pb-free BGA balls. Because Pb-free reflow demands higher temperatures, processing Pb-free BGAs on the same boards as components designed for SnPb's lower melting temperature results in incomplete BGA wetting (temperature too low) or other components suffering thermal damage (temperature too high).

The solution is to replace the Pb-free solder balls with tin-lead balls. Corfin safely and effectively replaces Pb-free balls with SnPb balls.

Corfin Industries provides component preparation services to defense, medical, telecommunications, and other high reliability industries. We pioneered our core technology, Robotic Hot Solder Dip, in the 1980's and today serve major OEMs and their subcontractors around the world. Corfin Industries has earned an unmatched reputation for quality and dependability resulting in preferred supplier status for numerous defense programs. Corfin facilities are ISO 9001 and AS9100 registered and JPL-certified for less than 50 volts of ESD potential at any work station.

The Corfin Industries Difference

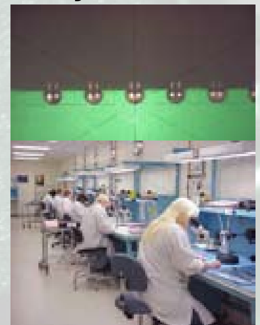
1. Proprietary RHSD equipment removes solder spheres from BGA substrate.



Corfin's dynamic, nitrogen -blanketed solder wave technology flushes balls off the BGA substrate, leaving none of the original alloy or other residue on the pads. The multi-axis, robotic system allows for extremely precise handling of the BGA, ensuring controlled contact with the solder wave and heat exposure.

Unlike vacuum de-soldering tools or wicking braid, Corfin's proprietary robotics completely flush away existing spheres and pad finishes, providing a homogeneous joint between the spheres.

2. Corfin leads the industry in turnaround times, quality, coplanarity, and guaranteed yields.



Every member of the Corfin team recognizes that quality is not just about inspection and test: it is about the total customer experience with our service. From your first contact with Corfin through the shipment of your order, stringently applied rules and processes ensure that everything goes according to plan. We never make assumptions and understand that no detail is too small to get right.

At Corfin, what we do is unique. How we do it is truly innovative.

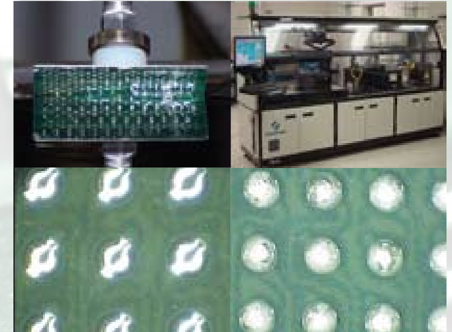
7-B RAYMOND AVENUE • SALEM, NEW HAMPSHIRE 03079 • USA • +1 (603) 893-9900 • solutions@corfin.com

CORFIN INDUSTRIES LLC
COMPONENT PREPARATION SERVICES

BGA Reballing
Equipment & Process

RHSD Ball Removal

- Corfin proprietary robotics ensure repeatability, consistent immersion depth, regulated temperature exposure, even solder thickness, coplanarity, and process cleanliness.
- Five-step process integrates flux, pre-heat, solder ball removal, water rinse, and dry.
- Robotics employ dynamic solder wave technology and contamination-free solder baths.

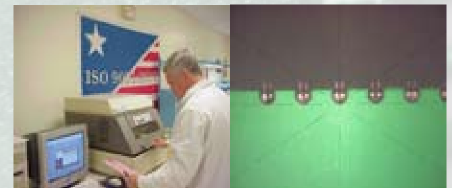


Flux Application, Solder Ball Placement, and Reflow

- Custom stencils created for each package ensure consistent flux volume and accurate ball placement.
- Programmable oven maintains temperatures and dwells within 3%.

Post Process Inspection and Qualification Testing

- Optical microscope and comparator examination confirm ball condition: physical outline, size, sphere integrity, luster, and uniformity evaluated.
- Available testing:
  - Acoustic microscopy
  - DPA: cross-sectioning and ball shear testing
  - Cleanliness
  - Automated scan for sphere size and location
  - XRF for alloy confirmation



Additional Process Features

- Components baked and packaged according to moisture sensitivity level (MSL) per J-STD-033.
- Thousands of parts have been reballed with a wide range of sizes and styles. Package sizes as small as 1.2 mm, pitch from 0.5 mm, and experience with plastic and ceramic components, including flip chip and multi-chip modules

Please contact us to arrange a site visit and see our process in action.

7-B RAYMOND AVENUE • SALEM, NEW HAMPSHIRE 03079 • USA • +1 (603) 893-9900 • solutions@corfin.com