Industry Newsletter & Technical Bulletin

GAISER TOOL COMPANY

• Inventors of the Ceramic Capillary •

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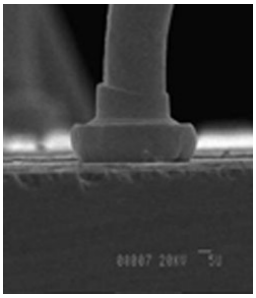
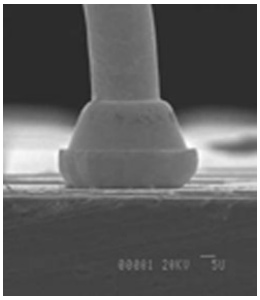
SBIC - The Small Ball IC Capillary

The proliferation of smaller geometries in the semiconductor back end assembly industry means smaller bond pads with tighter spacing among each other. These requirements have created a demand for smaller, more tightly controlled capillary geometries to produce a bonded ball of uniform shape and form, and of similar quality found in those of larger and older semiconductor devices.

However, the function of the capillary is no longer simply to provide form and shape but to assist in the creation of a reliable bond. New capillary design rules must now include other processing factors such as pad metallization and structure (low K, etc.), packaging design and materials, and other processing factors (temperature, ultrasonic frequency, etc.).

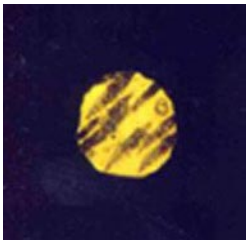


Standard IC Capillary

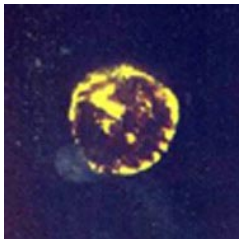


SBIC Capillary

Standard IC capillary designs can provide shape and form but fall short in providing higher reliability in terms of shear strength and/or intermetallic formation as well as the pad reliability (cratering, pad peeling, etc.).

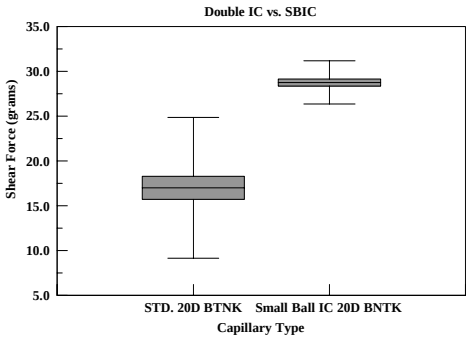


Standard IC Intermetallic Reaction



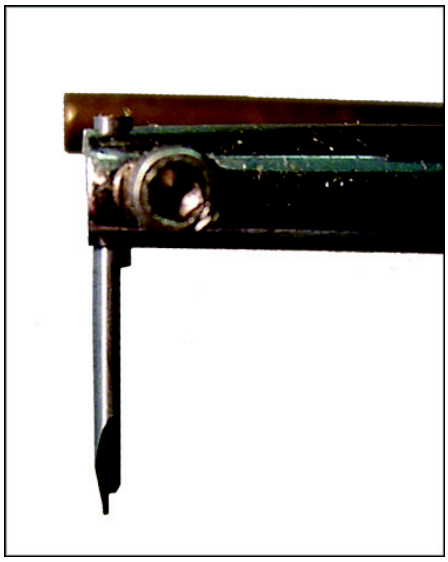
SBIC Intermetallic Reaction

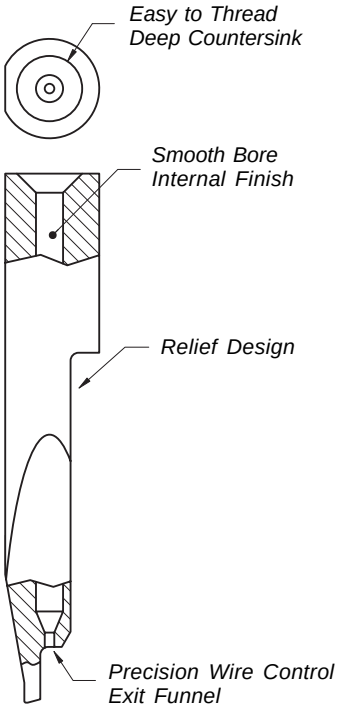
Gaiser Tool Company's new SBIC design addresses form, shape, and reliability all at once by means of a unique design that controls and distributes the stresses responsible for the bond formation. Proper manipulation of such stresses helps to control the intermetallic formation, bond deformation, and minimizes bond pad sub-layer damage such as cratering and pad peeling.



The 4800 Series Vertical Feed, Deep Access Wedge

Gaiser Tool Company is pleased to introduce a lower-cost, high-quality version of the venerable "A8D" style wedge, our 4800 series. Gaiser has leveraged our ceramic capillary manufacturing expertise to produce a high-tolerance molded tungsten carbide main body, as opposed to the costly and high-variance individual sinker EDM'ing of the vertical feed hole and funnel. By molding, we can produce tighter dimensional and geometric tolerances with a smoother interior finish at a lower cost. The dimensional consistency provides superior ultrasonic repeatability.





The 4800 series is both mechanically and ultrasonically optimized specifically for the WestBond vertical feed wedge bonders. The 4800 series is available in 45° to 60° wire feed angles at the tip, in 0.625, ¾, and 0.828 lengths, and in WC, TiC, and Cermet tip materials.

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