

**IMPROVED CAPILLARY DESIGNS AND
PROCESS FOR FINE PITCH BALL BONDING**

ABSTRACT OF THE DISCLOSURE

A capillary tube (1) for bonding wire (5) having a bore (3) and a cross section in a direction normal to the bore having a long dimension and a short dimension in a direction normal to the long dimension. The bond is made to bond pads (9) using the capillary tube by bonding a wire to one bond pad while the capillary is oriented with the long dimension (25 to 27 or 35 to 37) in a first direction and bonding a wire to a die immediately adjacent the one bond pad with the capillary which can be oriented with the long dimension in the same direction or in a direction normal to the first direction, as may be required.