

# Flexible Anvil Block Design for Automated Processing of Semiconductor Device

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## I. OVERVIEW

Anvil block is an indirect material used in *die attach* process to hold the carrier during the dispensing and bonding sequence. Each individual anvil block is designed with dedicated vacuum hole position corresponding to the design of the pad size and pitching along a single leadframe.



Fig. 1. Standard assembly flow for semiconductor product.

On normal circumstances, a machine may be converted to another set of semiconductor devices thus changing the anvil block is required. When replacing the anvil block from the machine, there is a manual intervention from the technician such as un-screwing of the anvil block from the machine platform and manual planarity of the material.

Some rejection like crumpled strips, un-even BLT (Bondline thickness), worst die tilting are correlated with the wrong or improper replacement of the anvil block therefore the number of set-up for a machine is minimized as possible. However, the occurrence of anvil block replacement process is un-avoidable on normal assembly.

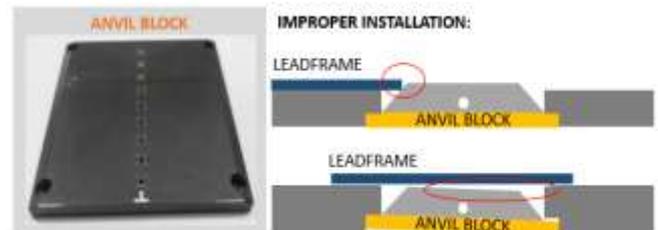


Fig. 2. Standard assembly flow for semiconductor device

## II. DESIGN SOLUTION AND IMPROVEMENT

With the primary objective of minimizing the negative effect of manual handling and intervention of a personnel on a standard assembly for semiconductor, the existing design of the indirect material is expanded by creating an interchangeable vacuum hole plate. The proposed design will be separated into two main part, (1) the base plate which on the alternative design will be fixed from the machine platform and the (2) interchangeable vacuum plate.

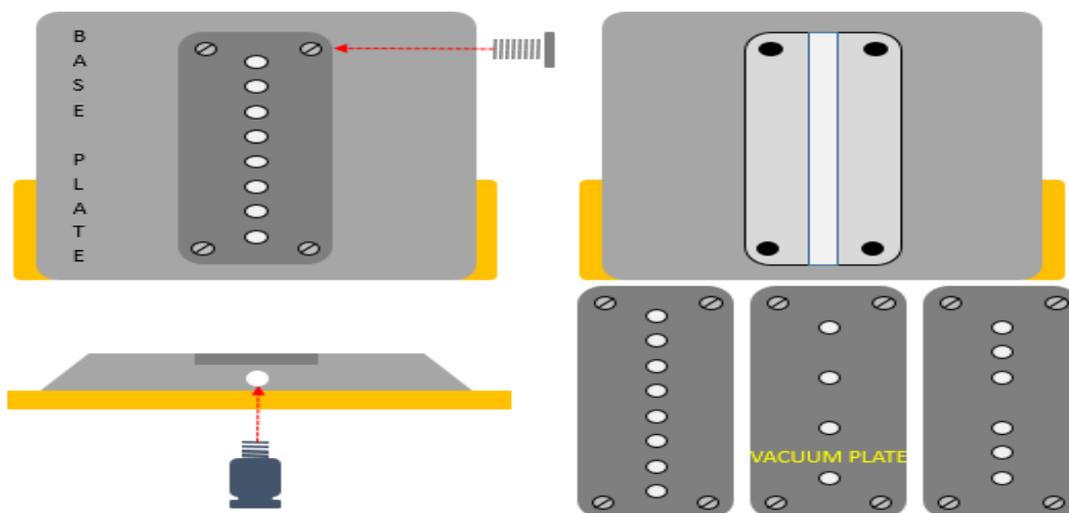


Fig. 3. Interchangeable anvil block