

Engineering note for Flex Cutting

NPI Mfg. Engineering

September 17, 2001

Existing Problems

- Not a clear sweep one cutting,
- Remove access of the Z-film with razor blade causes damaged on the polyimide,
- Flex movement while cutting,
- Blade should be some angle toward the substrate ($\geq 110^\circ$ away from cutting reference Normal plane of the substrate),
- The dept of the cutting groove should be deeper,
- Need compensation on the holding plate due to the initial bending of the flex, which can cause damage on the substrate surface and stress on the bonding area,
- Need to retrace the cut more than once because cannot get a straight cut on the first cut,
- No handle on the razor-not easy to hold,
- ZAF (Z-film) does not get cleaned off on subsequent cuts due to the edge on substrate,
- The razor wears away after first cut cause damage (at the substrate edge, cutting the flex back too far,
- Need additional fixture to hold the flex in remove the ZAF from the substrate.

Goals:

- Redesign a new fixture using with rotary cutting brad with the 115° angles built in.
- Design new holder fixture for removing ZAF.

October 1, 2001

Input form Design review:

- Change screw clamp to magnetic clamp
- Add reset (2.2 mm or .0865") on the claming bar to prevent the crush on the Z-file near the bond.
- Add bushing for roller to get a smooth rolling.
- Add the handle to get a good grip for rolling the cutter holder.
- Redefine load/unload blade zone.
- Re-establish the high of the cleaning fixture to 2"

November 22, 2001

Input form Flex Material Change:

- The rotation blade is not workable the flex is more difficult to cut.
- New blade, Stainless Steel Scalpel Blade, is will be use for cutting
- The design of the new holder place is need.
- Re-established cutting technique.
- Need the latest flex for qualify cutting.