

TOOL DAMAGE & WEAR

TROUBLESHOOTING TOOLING SERIES



FACTORS TO SHORTENED LIFE

1. Wear on cup; outer punch edge or die cavity
2. Tooling setup in press; affects uniform punch tip die clearance
3. Press speed; affects punch tip deflection
4. Compression force; the closer the force is to the maximum force rating creates a greater overall stress on the cup formation.
5. Variations in particle density can create higher stress at or near the cup edge.
6. Affect of coating or coating process on the base steel.
7. Any re-polishing of the cup formation
8. Surface corrosion effecting the steel in regards to pitting.
9. Mishandling, nicks or dents on the punch edge cup affect longterm edge-strength.
10. Press/punch guide wear, which affects the punches ability to move properly within a vertical direction.

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OUTER PUNCH EDGE WEAR DUE TO ABRASION



Punch wear - Abrasion all along punch edge.

TOOL SET-UP PROBLEM



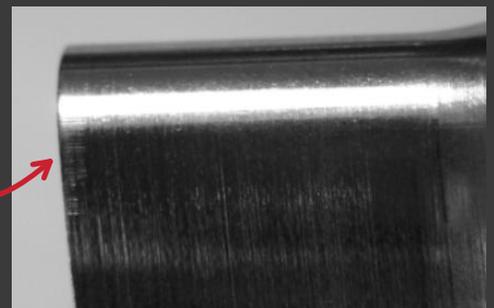
Uniform Clearance



Misalignment Contact

Upper punch (or setup punch) should be turned in the same direction as press rotation to "pre-set" die, and thus maintain a uniform clearance.

Vertical wear lines indicate contact is occurring with die cavity during upper punch tip entry.



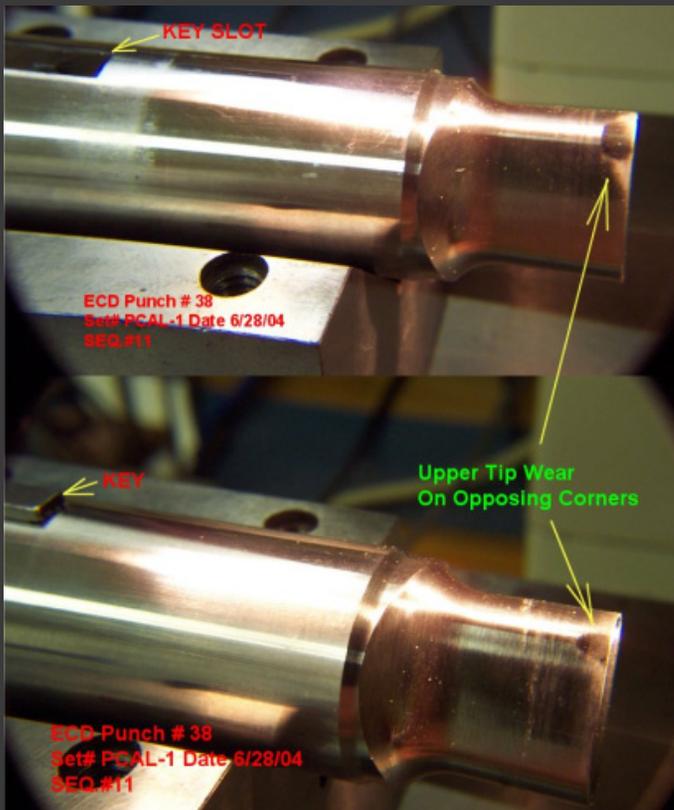
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MISALIGNMENT CONTACT



WEAR MARK ON TIP STRAIGHT



Punch is being used to set dies in press.

Avoid this amount of pressure in setting the dies.

Consider Elizabeth's special Triple-E (EEE) tooling and alignment punch to set dies.

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WEAR & BREAKAGE ON TIP

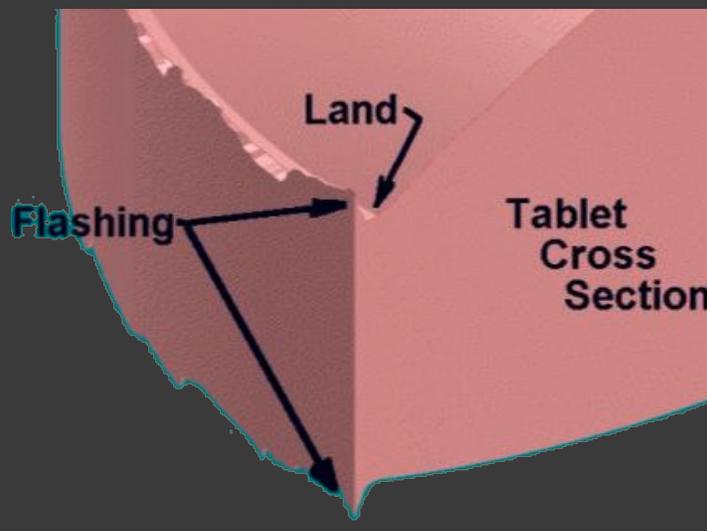
Possible cause:

Misalignment of Punch due to worn punch guides and/or die sockets. Excessive tonnage used.

- Inspect press for wear
- Discard tool
- Run F.E.A. to determine proper tonnage.



TABLET EDGE FLASHING



Possible cause:

1. High percentage of fines in formulation
2. Punch tip to die clearance too large
3. Outer punch edge wear

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BAKELITE RELIEF

High percentage of fines, high moisture content, or heat sensitive granulation.

When the tip straight edge is worn and powder is adhering to the die cavity and the tip relief, and a bakelite relief to improve the scraping action.

