WDSolutions

Problem - Cause - Solution - Innovation

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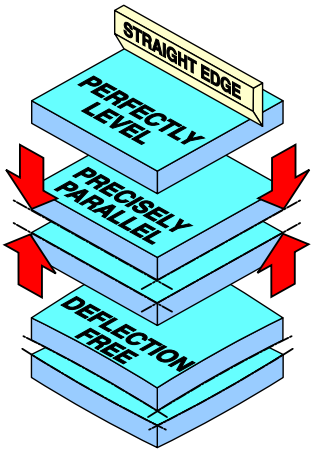
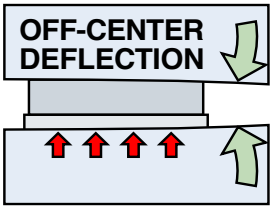
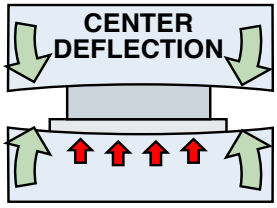
Category: Make Ready Problem Title: Setting a Kiss Cut Impression

PROBLEM

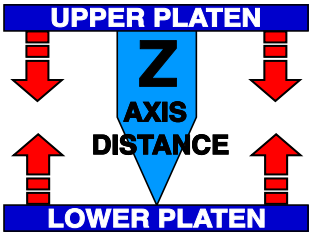
In principle, the platen diecutting press should be perfectly level, precisely parallel, and deflection free under load. ***See right***. In practice, if this were true then make-ready and setting a perfect cutting impression–would be relatively easy. Unfortunately, we understand practical reality demonstrates make ready is complex and often quite difficult. ***Why is this?***

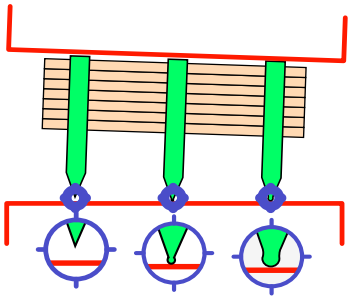






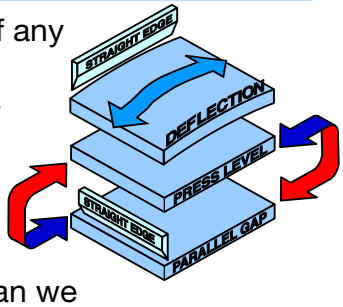
There are three primary problems in setting a kiss cut impression on any platen mechanism. ***See right***. The first problem is the deflection of the diecutting press under compressive load. ***See above left***. Even assuming the press is perfectly level, the second difficult challenge is in precisely setting the gap or the distance between the upper steel rule die and the lower cutting plate. This is referred to as setting the ***"Z-Axis Gap." See left***. The third problem is making sure pressure is balanced from one side of the press to the other. In other words the gap is identical on both sides, and in fact on all sides of the press, so the application of pressure is evenly balanced across the entire press. ***See right***.





CAUSE

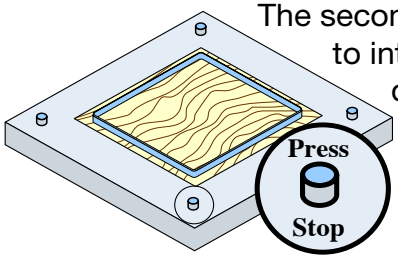
This problem is caused by the inherent instability of any mechanical system, and the difficulty of machining any surface to a zero flatness tolerance. When this is combined with progressive wear on key components, differences in mechanical operating temperature, and the uneven distribution of pressure in most asymmetric design layouts, deflection under load, variation in the parallelism of the upper and lower platen, and the difficulty of controlling the distance between the tools, makes setting a kiss-cut make ready a complex challenge. ***See right***. How can we simplify this task, speed up the make-ready, and generate a stable cutting make-ready?

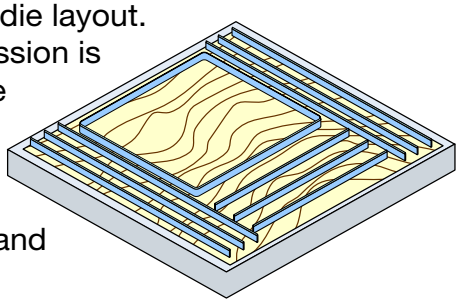


SOLUTION

One of the more common techniques is to integrate steel rule **"bearers"** into the periphery of the dieboard and of the layout to ***"balance"*** the cutting impression. ***See right***. These are usually positioned at the rear of the dieboard, however, they are far more effective if they are integrated on three sides of the die layout.

The second method of stabilizing the cutting impression is to integrate press stops into the corners of the dieboard. ***See left***. These are highly effective, however, there is a great deal of force concentrated in a small area, which can stress the press mechanism, and there is no ***"Z-Axis"*** adjustment.





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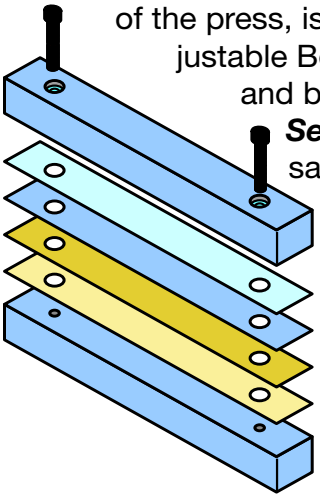
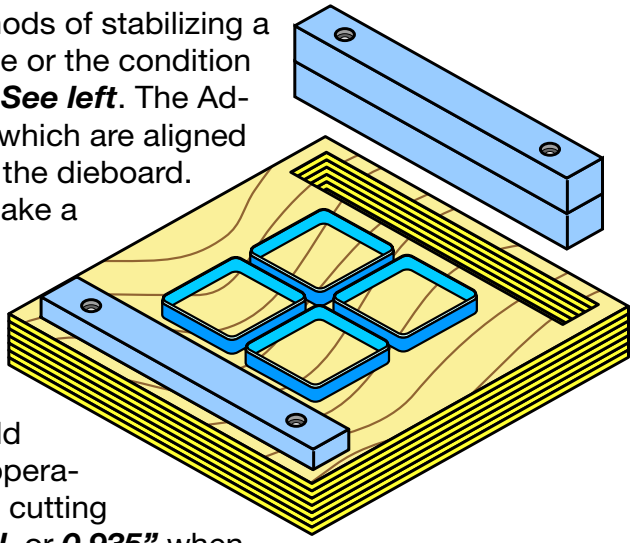
SOLUTION

One of the most effective methods of stabilizing a cutting press, no matter the age or the condition of the press, is to integrate ***Adjustable Bearers***. ***See left***. The Adjustable Bearer consists of two metal strips, which are aligned and bolted together, and integrated into the dieboard. ***See right***. However, the two strips make a sandwich, and the meat in the sandwich is a number of metal shims of different thicknesses.



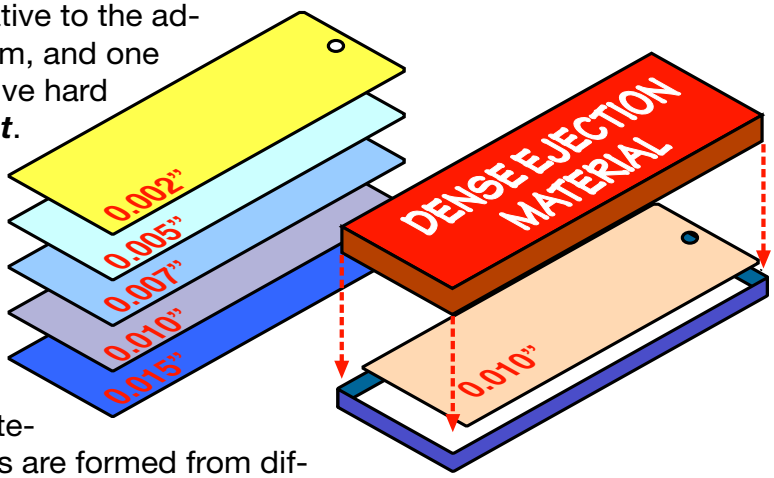


Clearly the total thickness of the Bearer Strips and the Shims should be ***0.937,"*** however, some press operators set the height at ***0.939"*** when cutting denser materials into a ***Hard Anvil***, or ***0.935"*** when cutting a softer material, into a ***Soft Anvil***. (Yes, these bearers work both on Hard Anvil and Soft Anvil Diecutting.)

Naturally, shims can be removed or added, quickly and simply, to change the cutting height of the press, and/or the height on one side of the press can be different from the height on the other side of the press. (***Warning***: *The Z-Axis Distance of the press should be adjusted as precisely as possible as normal, as simply using the bearers as a hard stop, could damage the press mechanism.*)

INNOVATION

An innovative alternative to the adjustable bearer system, and one which has many benefits, but is a less aggressive hard stop, is the ***Ejection Bearer System. See right***. This consists of a cavity formed in the edge of the dieboard, using Crease Rule to form the cavity. The height of the creasing rule is less than ***0.930"*** and the cavity is formed from two pieces of rule, which is bent at the four corners.



The ejection filler is standard height, dense material such as ***Green G'rilla***. The adjustable layers are formed from different thicknesses of shim steel as in the previous bearer system. This is a highly effective system of pressure and Z-Axis control, when the bearers are built into the sides of the dieboard as in the previous system. This is effective for both Soft Anvil & Hard Anvil Diecutting.

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West
2041 Elm Court, Ontario, CA 91761
Local: 909-947-3044 • Fax: 909-923-7809

Southwest
827 S. Great S'west Pkwy., Grand Prairie, TX 75051
Local: 214-630-4695 • Fax: 214-630-5425

Midwest
960 Industrial Drive, Elmhurst, IL 60126
Local: 630-782-6230 • Fax: 630-782-6220

800-423-4478 TOLL-FREE ALL LOCATIONS!
www.wagnerdiesupply.com
sales@wagnerdiesupply.com