

QUICK DIE CHANGE...

...one factor in the part-to-part exchange equation

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In the "good old days" when a stamper needed more press capacity the solution was to buy another press. Today, with corporate downsizing and factory streamlining, yesterday's manufacturing methods are by all accounts antiquated.

In days gone by companies would stockpile weeks and months

of inventory due to non-standard methods used to change dies. This type of production has come to be referred to as just-in-case (JIC), as opposed to just-in-time (JIT). Now we know that companies that have embraced change rather than avoiding it are the ones who have excelled in this ever changing, fast-paced world.

Let's face it, change is something we experience every day. You either accept it, even embrace it, or you resist yourself to playing catch up.

Today, there are acronyms for everything we do in manufacturing: JIT, SPC, TQM, etc. They are linked by a common thread, "time equals money." Those of us who use time more efficiently, those of us who

work smarter, not just harder, make more money. Most of us have a burning desire to be and to do the very best that we can.

To compete, we must set goals. But how do we know if we are doing what we should to become the best that we can and meet our goals? When the goal is quick die change we can use some pointers to steer us in the right direction.

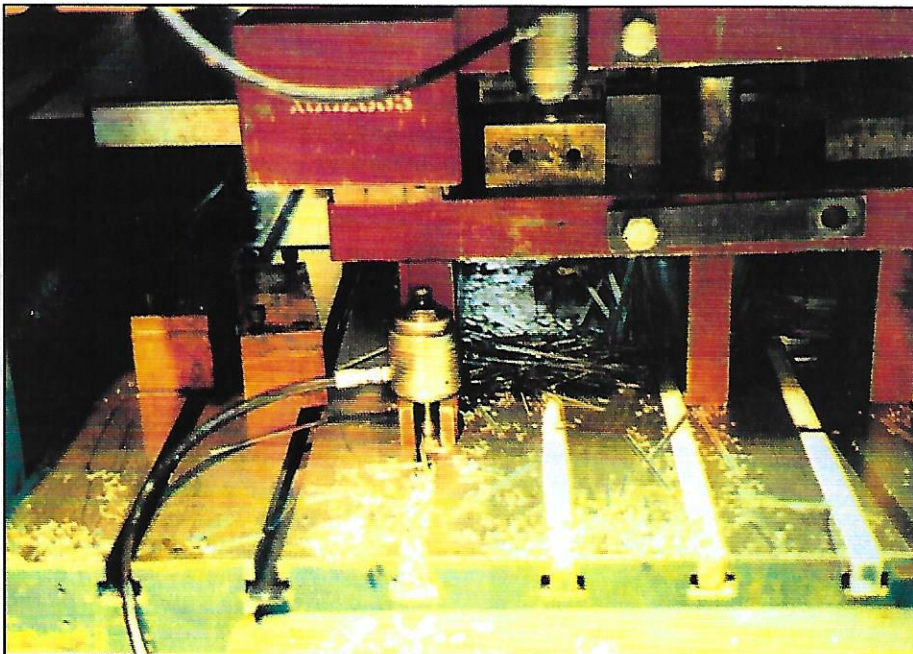
Consider your present method of die change:

- How long does it presently take to unclamp your die?
- Now be honest, how long does it really take to unclamp your die?
- How long does it take to remove the old die from the press?
- How long does it take to install the new die in the press and line it up properly?
- How long does it take to clamp your new die in place?

Now that you've clamped your die down, how do you know it's lined up? I mean without taking 10 to 15 hits, having the parts inspected, and then deciding whether or not your die is aligned properly. All of these processes take time. And, as we've already discussed, time equals money.

Other areas of consideration are preparing your next die. Finding the die can sometimes be more of a

Locating a large progressive die takes a considerable amount of time when scrap must first be removed. Use of a subplate can help to minimize this problem since most scrap will be retained on the plate and removed with the old die.



problem than you might realize. Press arrangement, die storage and material flow are issues that, if not properly addressed, could lead to a longer than necessary changeover time.

Commonalties

Do you find that no two dies line up the same? They probably have different shut heights, and different pass line heights.

First you have to address the time-consuming issue of adjusting the shut height of your press. Lest you think this is a no-brainer action, wait until that shut height is adjusted 0.5 in. too low. It doesn't take a rocket scientist to know what is going to happen to that die.

Adjustment of passline height can very definitely affect part quality. The smallest change can take as long to accomplish as a large change. By standard-

izing shut height and passline height, you can cut downtime on your presses considerably—sometimes as much as 60 percent.

Subplates are an industry accepted means by which various sizes of dies can be mounted onto a standard size plate. Then, the subplate and die can be loaded into the press with significant time savings. Unfortunately, too many companies look at the initial investment of subplates and decide they cannot afford this approach to quick die change.

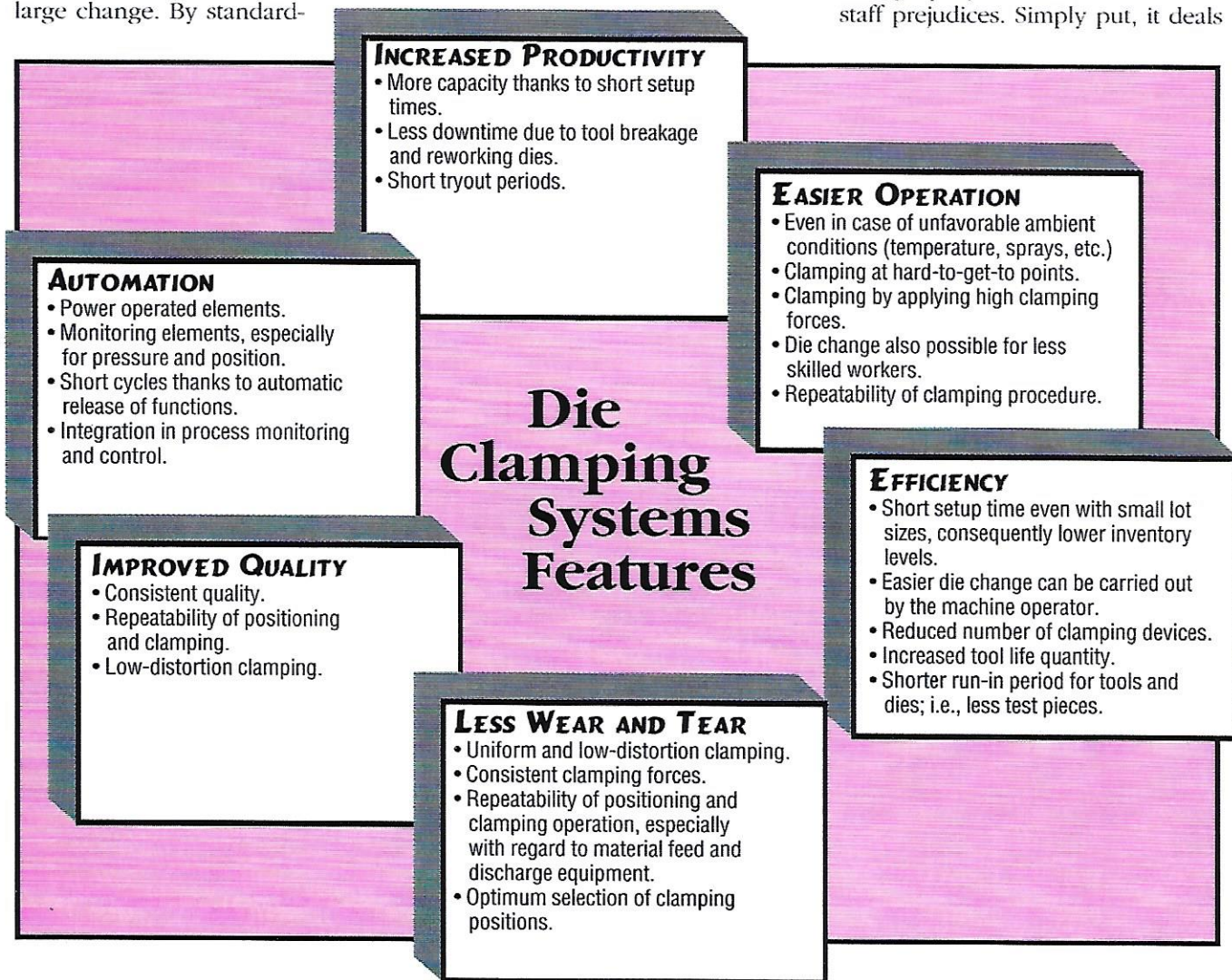
They fail to recognize that this is the very cornerstone of your goal. They spend a great deal of time and money trying to modify their dies, usually in vain.

Every manufacturer can benefit from standardized dies. The examples are numerous. For example, consider a press that runs 20 differ-

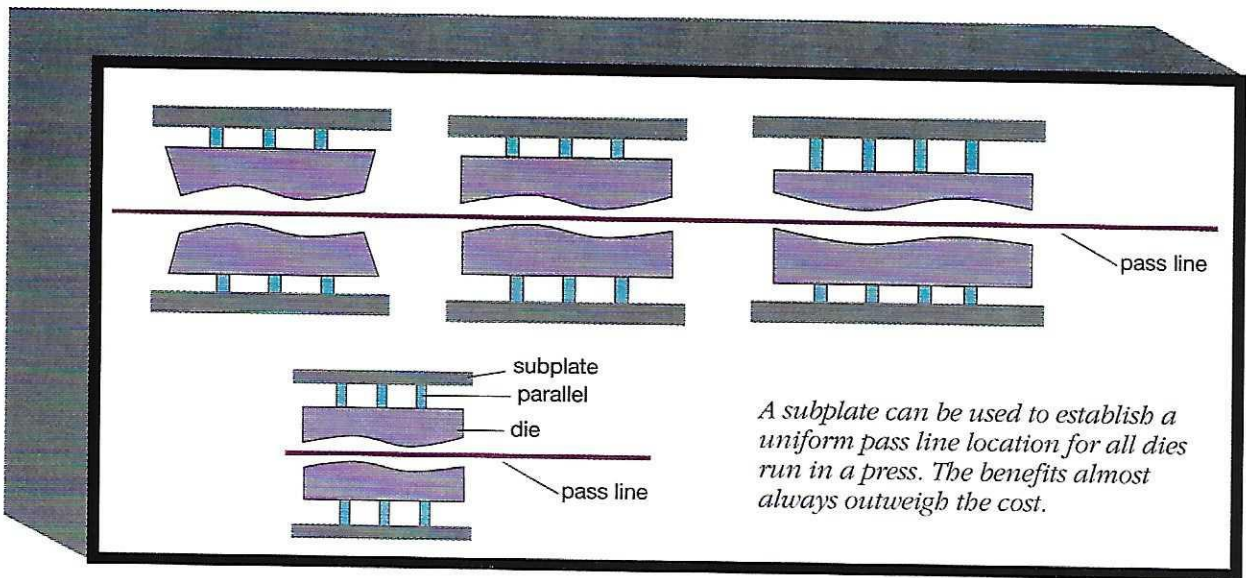
ent dies and each one has a different clamping height, clamping location and locating point. Since nothing on the last die matches up with the new die, it's going to take unnecessary time to change dies. With the use of subplates you can achieve the following standardization: die location, clamp location and clamping height.

In addition, subplates allow the use of lifters to facilitate die movement, regardless of weight and, for the most part, facilitate the cleanup of scrap since it tends to remain on the subplate and is removed from the press along with the die.

Now that we've addressed standardization of dies, it's time to discuss a method for quickly, safely and securely clamping the die in the press. Once again certain issues must be identified to fully understand the scope of a quick die change project. One such issue is staff prejudices. Simply put, it deals



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with the aspect that certain people do not like certain brands of equipment. It pays to get input from those who will be involved with the equipment you are reviewing. This will help to ensure a successful project.

Another point to address is safety. This aspect of the project should be researched thoroughly, especially when dealing with a hydraulic system. You should understand what makes one system completely safe and another system marginal. Hydraulic clamping systems are designed to be safe and reliable, but then so are presses. If your hydraulic clamping system is designed with two independent clamp circuits, pilot-operated check valves, pressure switches on your pump, zero

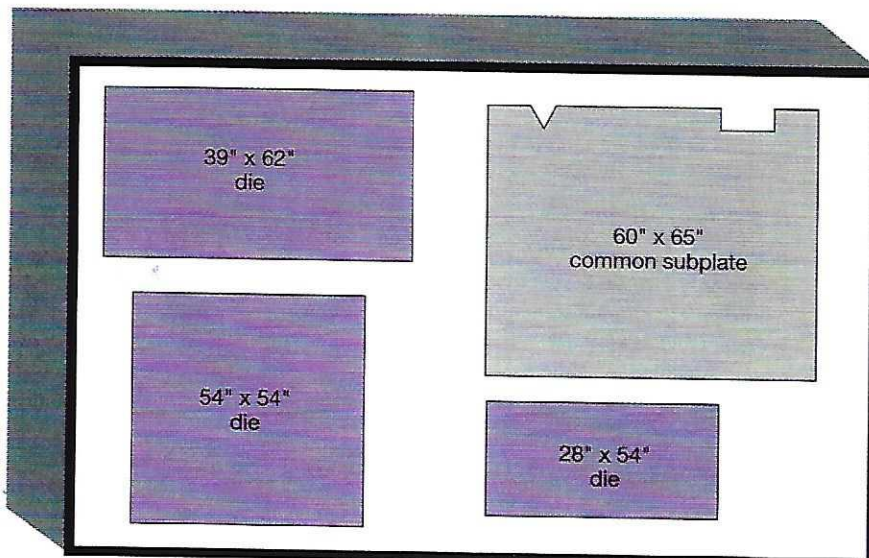
leakage valves, and the electrical controls are tied into your E-stop, DBC, and inch mode, you have the steps in place to where, in the event of a failure, "no damage should occur."

These safety features are more for the human factor than equipment failure. Some clamps can be positioned by hand. Others, by use of a PLC, can clamp the tool automatically. This gives the user choices as to whether a simple clamping system will satisfy their needs or a system where automation does all the changeover. Flexibility is the key. Hydraulic clamping can offer several advantages over the manual T-bolt and nut.

Lastly, an area that all too many of

us overlook is the supplier's ability to provide long-term reliability. Too many times price is the deciding factor on which systems are purchased. Simply put, you get what you pay for. Take a look at the expertise and experience of the potential vendor company. Can it help you through all the steps you must take in order to select the proper equipment? Will the engineering staff answer your questions promptly and professionally? Does the sales staff understand your goals and concerns? Moreover, do they do what they say they'll do?

Quick die change has many facets. To think of it as a one-time fix is a serious mistake. Obtaining and keeping a competitive edge is an ongoing commitment, one that requires constant education based on new technologies and new equipment as it becomes available in the marketplace. This is an area where technical seminars are designed to help the end user decide which direction and equipment will be right for them. After all, keeping the competitive edge in the U.S. is something we can all enjoy. **MF**



The three rectangular die sizes illustrated all can be accommodated on a common subplate measuring 60 in. by 65 in. Subplates are notched for easy location on the press bed.