



July - August 2005

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Coming soon...



• **IADD Meeting - Sept. 22-24, 2005**
Beau Rivage Hotel, Biloxi, MS



• **TAPPI 2005 Corrugated Packing Conference, Sept. 27, 2005**
Las Vegas, NV

• **CPP Show & Pack EXPO 2005**
September 26-28, 2005
Las Vegas, NV

Wagner Die Supply
Diecasting & Diecutting Source & Resource

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Wagner Education and Resource Center opens



Wagner Die Supply President Ellsworth Knutson welcomes all guests in attendance to the recent opening ceremonies for the new Wagner Education and Resource Center in Ontario, California held on July 12, 2005.

On a beautiful, sunny and somewhat hot California afternoon, the Wagner Education and Resource Center (WERC) held its opening ceremonies. Over 120 guests got an exclusive "inside look" at what is the worlds first and only die industry-dedicated education, training and resource facility. The event featured a "mini-trade show" presented by the many die industry sponsors participating in the new Center. The many displays highlighted the very latest and best in die industry supplies and equipment.

The new Center houses classrooms, hands-on training work stations, proofing equipment, automated rule processing equipment, diecutting presses and a wide variety of die industry tools and equipment from Wagner Die Supply, as well as many other of WERC's sponsoring companies.

The evening kicked-off with a mini-trade show featuring representatives and displays from several of the steel rule die industry's top manufacturers of steel rule, ejection material, matrix and specialized equipment and tools.



Guests attending WERC opening festivities inspect the various training stations and the mini-trade show exhibits (foreground).

(Continued on page 2)

WERC: Wagner Education & Research Center Opens *(continued)*

After a buffet dinner, several speakers took center stage, including Ellsworth Knutson, President of Wagner Die Supply, WERC Coordinator Greg Baker and Rick Putch, who will be a regular contributor to the Center as an instructor and speaker.

The event's keynote speaker was Kevin Carey. Mr. Carey is the Technical Director of Dieinfo, Inc. and will also serve at WERC as an instructor and speaker.

A central theme shared by all of the evening's speakers was the challenge of growing competition facing the steel rule die industry today. This competition comes from both domestic and overseas sources. The training and education to meet these challenges is a very valuable tool. The important areas of maximizing production, on-site/press troubleshooting, operating theory and maximizing the productivity of machinery and personnel were also discussed. WERC courses, programs and seminars will address these very issues, as well as other vital issues that concern the competitiveness and profitability of die industry companies today.

The day's events culminated in the continuation of the mini-trade show and post-ceremony mixer. It was fun to visit with those that attended, and answer questions about our new Center.

All of us at Wagner Die Supply want to thank all of our many customers, vendors and friends that were able to attend and help us celebrate the opening of our new Center.

The Center is open, Monday-Friday 8:30 a.m. - 4:00 p.m. (PST). Call or visit us today, we currently offer a wide variety of programs, courses and seminars. WERC can also custom-tailor specific courses or "custom corporate training and education programs" which can also be designed and arranged specifically for your organization. The Center can also assist companies that need product analysis, evaluation and testing. For more information on WERC programs, please contact our Director, Greg Baker at the above number or, via e-mail at gbaker@wagnerdiesupply.com. Schedules and descriptions of WERC Fall 2005 programs are now available by contacting the Center at (800) 423-4478 or by logging-on to:

<http://www.wagnerdiesupply.com/WERCHome.html>

The Wagner Education and Resource Center, WERC, represents the vision of our founder Frank Wagner, and his family. Early on in his long and distinguished career, Frank, who was a pioneer in the industry, saw the need for a place where diemakers and diecutters could go to improve their abilities and receive training and education in their specific fields. Frank, and his son Robert, passed on many years ago, but their legacy remains alive today. WERC is dedicated by the Knutson family, to their memory and the positive influence they had on our industry, an industry they helped build with their innovation, leadership and spirit.

Service, innovation and quality; the "Valu-Edge", have always been at the core of everything we do here at Wagner Die Supply. WERC is another important facet of our "Valu-Edge" philosophy – delivering the very best in quality, service and technical support – it all adds up to maximum value for you – our valued customers.



Kevin Carey, WERC Technical Director, addresses the audience at the opening ceremonies of the Wagner Education and Resource Center on July 12, 2005. Kevin will be a regular contributor and instructor at WERC.



The Wagner Education and Resource Center is located at 2043 Elm Court in Ontario, California. WERC is centrally-located, and is near the Ontario International Airport and various hotels and accommodations are close by.



Design & Fabricate Fast, Simple, & Cost Effective Male Blanking Tools

Wagner Die Supply continues to support the Wagner Easi-Blank system with training, workshops and seminars. This modular system of blanking toolmaking provides the perfect foundation for the female blanking grid. However, how can the cost effective Easi-Blank system be matched with a simple, effective, and low cost male blanking tool? This article describes one proven and effective method.

Making a Cost Effective Male Blanking Baseboard

The baseboard for a male blanking tool is a plywood panel, onto which all of the pushers and hold-downs are mounted. This is traditionally made from high quality maple plywood, however, our first cost saving is to substitute inexpensive CDX plywood! The CDX board is sawn to shape, and a lasercut or plotter cut template used to mark the positioning holes, positioning centerline and the centerline notch. See illustration 1.

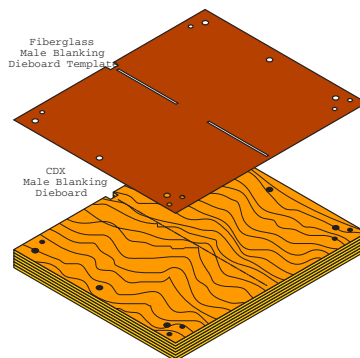


Illustration 1.

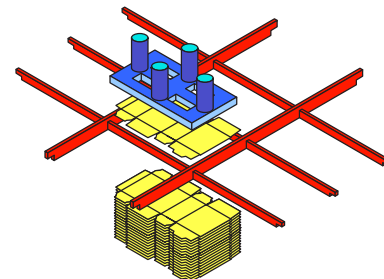


Illustration 2.

Creating the Male Pusher Register Mask

Now we have a baseboard it is time to make the male pushers. Each male pusher is designed as the name suggests, to separate the carton from the double-cut frame, and then to push the separated blank through a rigid female grid. See illustration 2. The first question, as we do not have a lasercut baseboard/guide is how do we get position for the male blocks? The answer is a plotter cut paperboard mask. See illustration 3. This is easy to produce as we already have the carton and the layout designed, and the mask is simply the waste material left after the entire layout has been cut from the correct size of diecut sheet.

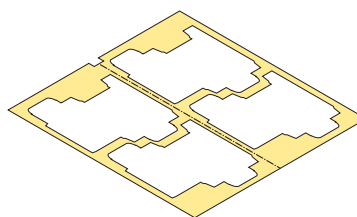


Illustration 3.

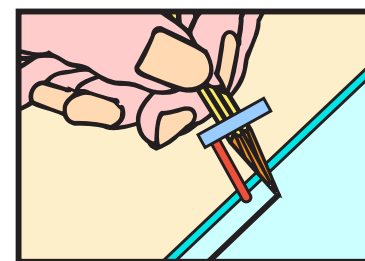


Illustration 4.

So now we have the baseboard and the positioning mask. How do we make the male pushers?

Creating the Foam Male Pusher Blocks: Single Height

Creating the foam male pushers is simple. If we choose single height foam, the mask is used with an offset ink or marking pen, see illustration 4, to draw directly onto the surface of the foam. The foam is then cut to size and to shape using an inexpensive Hand Jig Saw, see illustration 5, available in many hardware stores, or by using the standard jig saw, often already in place in the diemaking operation. Holes are cut into the foam, in different places to allow the air to escape through the blocks as the male blanker goes on impression. See illustration 6. The foam is called Easi-Foam and is supplied by Wagner, please visit: <http://www.wagnerdiesupply.com/ejectionmats.html> and click on the Easi-Foam link for a product data sheet in pdf format.

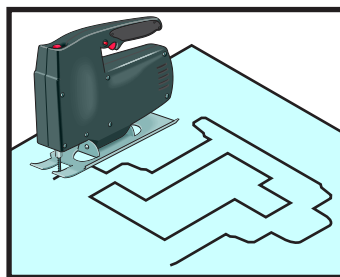


Illustration 5.

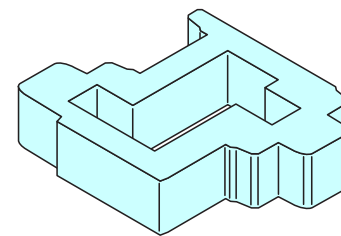


Illustration 6.

The mask is positioned on the CDX baseboard, and the foam is glued into position using a standard Glue Gun. See illustration 7. Where there are airflow holes in the foam, several holes are drilled into the CDX board/foam cavity using a standard drill with a 1" bit.

To finalize the tool it is necessary to add waste frame hold-downs.

The Blanker Hold Down

The simplest hold down is to use resilient ejection foam, which is cut into the appropriate width strips on a band saw. Note the height of

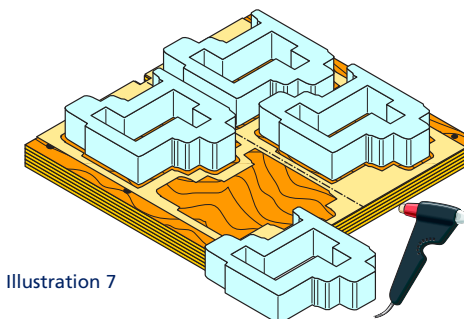


Illustration 7

(Continued next page)

How to Design & Fabricate Fast, Simple, & Cost Effective Male Blanking Tools (continued)

the foam is greater than the height of the foam pusher blocks. The width of these strips is cut to be a close but not a tight fit in-between the male pusher blocks. See illustration 8.

As the tool does an impression the foam pusher blocks support the ejection foam hold down strips to prevent them from distorting. See illustration 9. As the outer ejection foam strips do not have the foam on both sides to support them, they are cut to a double width, see illustration 10, as this will prevent them flexing and distorting.

Note that the foam ejector strips overlay the rails, as the tools close. However, this overlap, has no impact on the separation of the blank, and in fact the overlay enables the ejection to form a slightly concave strike surface, which more securely clamps the waste frame to the female grids rail. See illustration 11.

Summary

The goal of this article is to show some of the low cost, disposable, but highly effective male blanking tools being used in different parts of the industry. While this requires a limited amount of preparation, the use of inexpensive materials, of simple tools, and a different approach to toolmaking, generates a simple, fast to make, effective and low cost male blanking tool.

This is a synopsis of a more comprehensive Wagner ProTech article on designing and fabricating low cost male blanking tools. To download the full article, visit the Wagner Web Site ProTech page, at <http://www.wagnerdiesupply.com/proTECH.html>

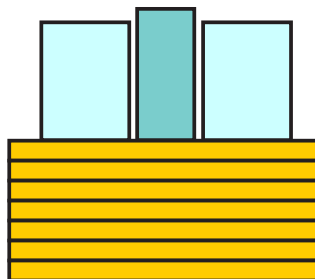


Illustration 8.

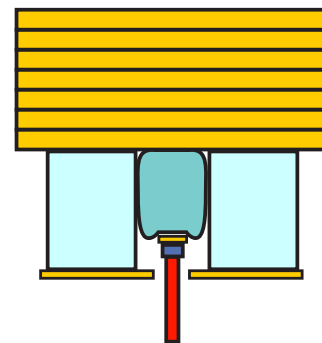


Illustration 9.

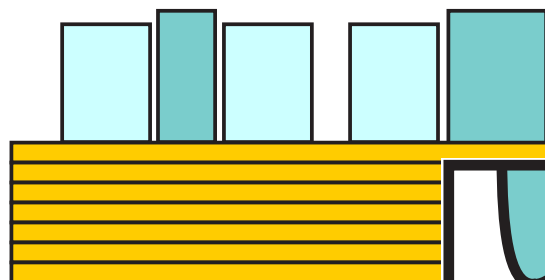


Illustration 10.

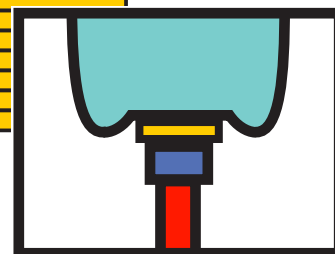


Illustration 11.

Stripping Small Shapes & Punch Holes in Sheet Fed Platen Diecutting

In assessing the diecutting system of converting manufacturing, it is important to emphasize the word "system." Diecutting, which is an incremental manufacturing process, consists of many different though integrated disciplines. The point in making this statement is to illustrate how vulnerable the diecutting manufacturing system is to productive and quality failure if one item out of a hundred other items is incorrect. For example, it could be what appears to be a perfect diecut part, but one critical internal cut is not complete; it could be a great fluted container, but one crease fractures as it is folded; and it could be a production press, which is capable of high speed, but which is slowed by the difficulty of separating and removing a piece of waste, smaller than a dime!

The Pin Rail Stripping Tool

One of the most common solutions to stripping small pieces of parts is to add lower telescopic pins, which are provided by the press manufacturer. See illustration 1. These are very effective, however, if there are a great many holes it is sometimes difficult to get a pin positioned on every piece of waste. See illustration 2. Therefore, where there are concentrations of pins in a small area of the design/layout and it is difficult to justify a full lower pin stripping board, Rail Pins are substituted. These are made from scraps of plywood, which are lasercut in the pin rail and the Pins are made using standard machine pins. See illustration 3. The rail is then mounted on the standard machine

telescopic pins, see illustration 4, which means the entire assembly will perform as the standard lower stripping pin.

This is simple to do, it is inexpensive, and it is highly effective.

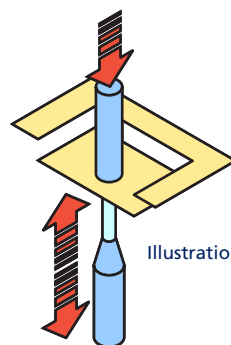


Illustration 1.

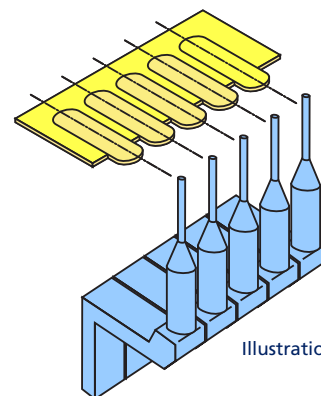


Illustration 2.

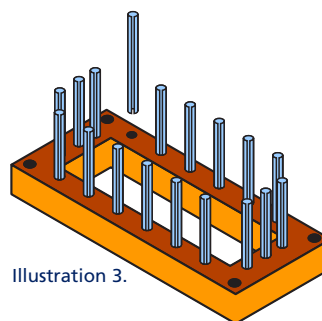


Illustration 3.

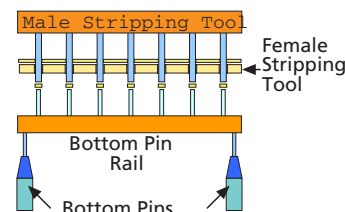


Illustration 3.

Stripping Punches & Small Waste Pieces

Stripping is the separation of a pre-cut piece of material from the balance of a diecut sheet, and the removal and disposal of that waste piece, without undermining the integrity of the diecut sheet! The difficulty in stripping very small parts is ensuring every part of the profile is perfectly separated from the balance of the diecut sheet, and there is no retained fiber, preventing the part from being stripped efficiently. See illustration 1.

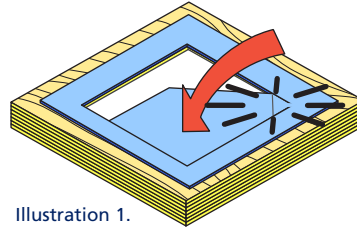


Illustration 1.

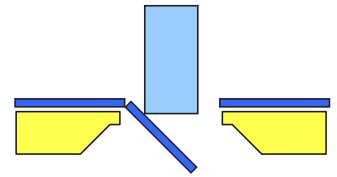


Illustration 2.

In a large part the degree of retained fiber is not enough to prevent the part being stripped, however, on a small part, where the degree of fiber represents a greater proportion of the profile of the part, it is not as though the retained fiber requires a great deal of force to separate the fiber, but getting the force to the point where the fibers are holding is the difficult issue.

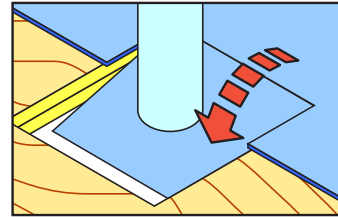


Illustration 3.

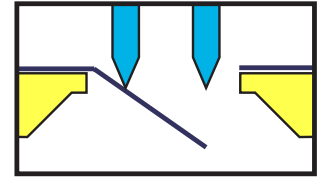


Illustration 4.

Using a single flat top pin will allow the part to slip laterally and hinge into the cavity, see illustration 2, or to trapdoor, see illustration 3, either of which is a disaster. Even if pointed pins are used, and we have the pins exactly in the center of effort, the greater hold on a minute section of the diecut part profile can cause the part to pivot and to create major stripping problems. See illustration 4.

The solution is to use a multi-barbed pin, see illustration 5, which eliminates lateral slippage, and one, which provides a larger shearing footprint. See illustration 6. Even with this more effective pin shape, it is vital the pins are multiple heights, to ensure stripping pressure is incremental and more effectively distributed. How can we cost effectively do this?



Illustration 5.

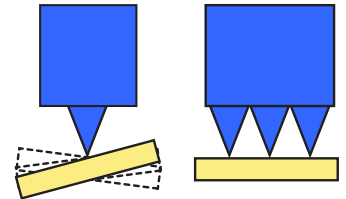


Illustration 6.

The Lasercut Male Pin System

The most effective manner to create a multi-barbed male pin layout, which will match and reflect the specific needs of the job to be stripped, is to cut the pins on the standard laser from a thin steel sheet. A standard pin would be cut in two halves and interlocked together as they are inserted into the male tool baseboard. See illustration 7. Note the bridge pattern, which is used to prevent the male pin being driven too far into and through the board. Naturally the pins would be designed and would be cut to different heights, see illustration 8, to provide multi-height stripping.

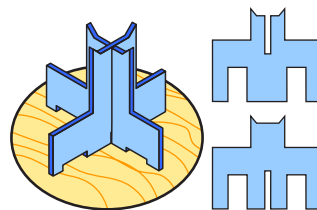


Illustration 7.

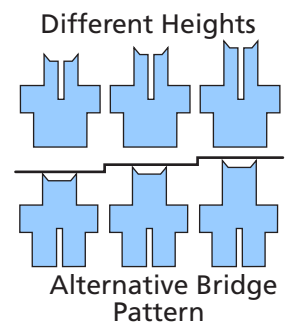


Illustration 8.

The pins can be programmed in strips, which incorporate multiple heights, see illustration 9, and allow interlocked cross members to complete the four-point pin strike surface. See illustration 10.

Obviously this requires having access to a laser, but the programming and the cutting of a standard inventory of interlocked, multi-pin stripping tools is relatively simple, and inexpensive.

This is easy to do, it is low cost, it provides unlimited design flexibility, and the resulting lasercut stripping pins are very effective.

Note The different heights of pins to distribute pressure and to improve performance!

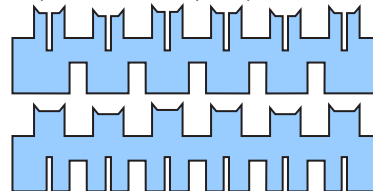


Illustration 9.

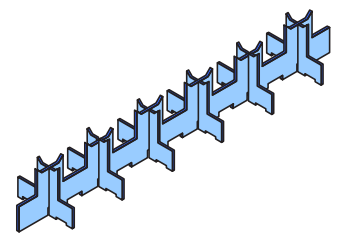


Illustration 10.

Thin Plate Ejection Apertures

One of the perennial problems for diecutters is to eject a diecut layout of parts from the cutting plate or the press anvil. Clearly the steel rule die has wonderful ejection options, but as the cutting plate is generally on the bottom of the stack, see illustration 1, we do not even have gravity on our side! There are many techniques to minimize the problem, from spraying the cutting plate, or coating it with a release agent, or dusting it with various types of powder, or even adding small lifters to push the sheet clear of the cutting plate surface. See illustration 2.

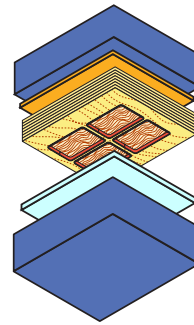


Illustration 1.

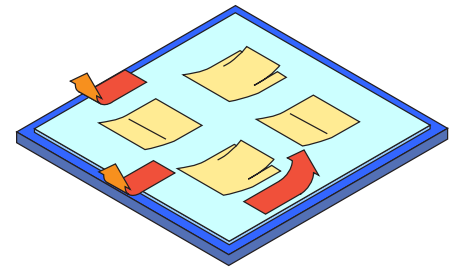


Illustration 2.

While this may be effective in some applications, presses in which the material is pushed forward can a problem, thin materials, which would be deflected around an ejector, are permanently deformed, and sometimes the size of the cavity and the space between them leave little space to adhere a lifting ramp.

Fortunately the introduction of Thin Plates by Wagner Die Supply, which are a compromise between the hard steel cutting plate and a soft polyethylene anvil, provide an interesting solution. As the plates are relatively inexpensive, the design can be positioned to the cutting plate using the CAD CAM system, see illustration 3, and apertures lasercut through the plate. See illustration 4.

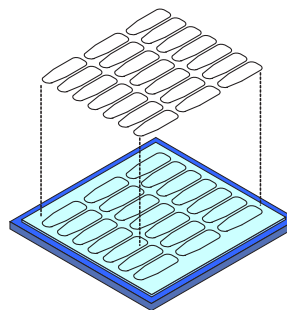


Illustration 3.

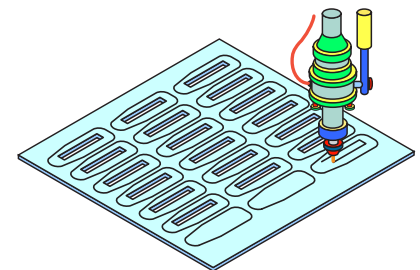


Illustration 4.

Even though the apertures are shallow, a thin hard stainless steel shim ejector can be cut and shaped to fit into the aperture. See illustration 5. The degree of ejection force can be controlled by the angle of the ejector ramp and the thickness of the stainless steel, see illustration 6, and/or the degree of resilient ejection force can be adjusted by changing the shape of the ejector.

This is a very effective and relatively low cost productive solution.

Another interesting technique we can visit at another time is to use the aperture for a softer inserted anvil material, to make sure a punch hole is completely cutting through foam or a soft material. See illustration 7.

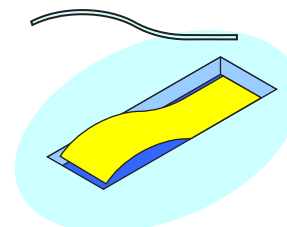


Illustration 5.

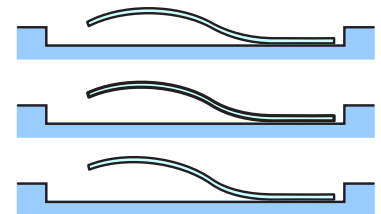
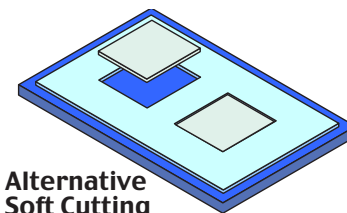


Illustration 6.

For more information on the research and training projects planned for the new Wagner Resource & Education Center call Greg Baker at 1-800-423-4487 or via e-mail at gbaker@wagnerdiesupply.com



**Alternative
Soft Cutting
Anvil Insert**

Illustration 7.



Members of:



West

2041 Elm Court • Ontario, CA 91761
Toll-Free:
(800) 423-4478 • Fax: (866) 786-2437

Southwest

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Toll-Free:
(800) 262-4695 • Fax: (800) 446-6651

Midwest

960 Industrial Drive • Elmhurst, IL 60126
Toll-Free:
(800) 334-7914 • Fax: (800) 554-9124

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