

THE

# CUTTING

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# EDGE



*Cover Story:*

## **Maintenance Plans Extend the Life of Your Reliable Clamshell Platen Press**

### INSIDE

Wagner Die Supply Turns 70 ♦ The Final Decision 104 ♦ Pharmaceutical Packaging ♦ Mistakes to Avoid When Communicating Change ♦ Unconscious Incompetence ♦ Increase Your Leadership Impact ♦ Patent Application Primer ♦ Safety: How to prepare for OSHA

# Maintenance Extends Life of Reliable Clamshell

Rob Weidhaas Jr., My Press Needs, Tampa, FL, USA

**“A well-maintained clamshell leads to higher production rates, less down time and a better attitude.”**

Demand for the clamshell platen press continues to grow, as printers and finishers rediscover its cost effectiveness for short to medium runs. Versatile and affordable, the clamshell is a reliable workhorse. But even workhorses need routine maintenance to perform consistently day after day.

“A well-maintained clamshell leads to higher production rates, less down time and a better attitude,” said David Mussi, owner of Nationwide Die Cutting Services. “Everyone’s work attitudes are better when their work area is organized,” he added. “A clean work

area with a clean machine is more efficient. Plus, it adds to safety.”

Mussi recommends that plant management establish daily, weekly, monthly and annual clamshell maintenance procedures. He explains, “Spending a little money now saves on spending a lot of money later.”

A clamshell specialist for more than 35 years, Mussi built Thomson presses for 25 years, and has serviced a variety of clamshells around the world, including Brausse, Crest, Cauhe, Thomson, Standard and Yawa. He also serves as lead technician for My Press Needs. His daily clamshell maintenance list includes:

- Clean front and side area of the press
- Remove any debris from the rocker and cam area
- Make sure the cam well stays clear of debris
- Check for oil leaks and loose bolts
- Make sure all safeties are working properly
- Listen for any odd sounds, like squeaks and knocks
- Find lost screws when dropped

Clamshell presses are low maintenance if taken care of properly, according to David Langston, owner of Langston Industrial Service. Langston, who has more than 35 years’ experience servicing clamshells and other



Inspecting platen safety for proper function

equipment, advises operators to look at the press on a regular basis, making sure it's parallel.

Langston stresses the importance of daily cleaning. Dirty or improperly cared for clamshells can lead to a host of problems: clogged oil lines, loose bolts and other parts; machine fatigue; and an unlevelled platen. "Train your operators to clean it safely," said Langston. "Make sure the flywheel is turned off."

Both Mussi and Langston say human error can contribute to maintenance issues. If a press locks up or crashes for some reason—the press hits the die too hard due to improper impression settings or the press is hit by a pallet or forklift—the press should be checked for damage by a service technician.

If the initial incident isn't reported, a gear could loosen from the shock of the crash or lockup. A bushing could become scored if locked up, causing the oil line to get plugged and the press to fail.

Neither problem may be obvious immediately, but instead over a period of weeks or months, which is why preventive maintenance is so important.

## "Worth the investment"

An external preventive maintenance plan provided by a clamshell OEM can help extend the life of the press. "A skilled technician not only inspects the machine, but also checks to make sure dies are properly balanced so they're not overloading the press," said Mussi. "That kind of input can improve performance and equipment longevity."

Updating the press to current safety standards is also an important part of preventive maintenance. The clamshell should be examined annually to make sure current ANSI standard B65-1:2011 is met.

During an annual preventive maintenance appointment, technicians will inspect and adjust five to ten key areas of the press, including:

- Gearing, bearing and any wear areas
- Bridge roller and rollers

- Lugs
- Tangent point area
- Proper lubrication use and distribution throughout the machine
- Loose bolts or other parts
- Safeties
- Clutch and brake discs
- Fatigued parts, like the latch, cam, cutting plate and cutting plate hinges
- Thrust system

"The thrust system can cause excess deflection in equipment if it's not properly adjusted or is worn," said Mussi. "That deflection can damage the press." Additionally, Mussi said the impression adjustment will be re-calibrated, and the platen leveled as part of preventive maintenance.

John Keeler, Manufacturing Engineer at Uticom Systems, says both internal maintenance procedures and professional maintenance are important. He inspects the company's two Crest clamshells weekly, making sure the lubricant reservoirs are filled. Every three months, he checks for and removes any debris on the main operating part of the clamshells.

Uticom also has a preventive maintenance plan for its clamshells, which is worth the investment, according to Keeler. "A skilled clamshell technician knows the presses, and sees a lot of diecutting situations. He can eyeball and find anything going astray before it becomes a major issue. Then he can easily bring the press back into spec."

The technician also can provide suggestions and training on die set-up, makeready or press operation. "For both safety and machine maintenance, we train our operators," said Keeler. "They need to know how to operate the clamshell, and how to shut it down if necessary. And they're trained

**Dirty or improperly cared for clamshells can lead to a host of problems: clogged oil lines, loose bolts and other parts; machine fatigue; and an unlevelled platen.**



Dave Mussi conducting training at Xymox Technologies, Inc.



Leveling the platen in a clean environment.

how to adjust the press so it's parallel to the main plate."

## "Leveling paramount"

Keeping a clamshell press leveled is critical to both its performance and lifespan, and is one of the key reasons for preventive maintenance.

A properly-leveled platen produces a higher quality cut and adds to die life. Set-up times are faster; makeready materials are fewer; and more jobs can be produced per hour. Plus, a more even cut distributes the load equitably so there's less fatigue to the machine.

"All brands of clamshells will perform much better if properly leveled," said Mussi. He went on to say presses like the Crest and Thomson can have setup times of 10-15 minutes. "If the press is out of parallel, times can triple. It's paramount to level the platen."

Leveling the platen is a fairly simple job for a skilled technician, according to Langston. But he doesn't recommend clamshell owners try it themselves, explaining, "If you make a mistake or break a major part, it can cause extreme damage."

To level a platen, several vital areas of the machine are inspected. Procedures include:

- Calibrating and adjusting the lugs and cam area for proper settings so the cut is level from top to bottom

- Adjusting the cam so the transition from cam to rocker is smooth and seamless
- Cleaning and checking the areas the lugs ride on
- Inspecting the lugs themselves
- Examining the latch and bridge roller areas
- Checking the clutch and brakes

"No application will fix an out-of-level machine," said Mussi. "Replacing the plate won't either."

Mussi says clamshell owners often think a new plate will solve their diecutting issues, when in reality the platen needs to be leveled. "If you spend \$2,000-\$9,000 USD on a new plate, eventually it will be destroyed because the press isn't level."

Other parts that can be affected are the lug and cam areas. Four bridge lugs hold the platen tight and level. If the die isn't centered top to bottom, the lugs will have a gap, causing the platen to rock and shift. The wobbling platen puts extra pressure on the lugs, causing premature wear. "If you have an 80-ton (72.57-tonne) die, 40 tons (36.29 tonnes) top and bottom, that's 35-40 tons (31.75-36.29 tonnes) of pressure on the lugs," said Mussi.

An unlevelled platen also damages the dies in conventional diecutting because the knives are touching steel on steel. "When cutting most materials, the knife should never touch the plate," said Rick Putch, Director of Technical Services and Process Improvement at National Steel Rule Co. "As the knife begins to penetrate the substrate—similar to an axe splitting a log—the material being diecut separates prior to the rule passing through. This can result in severe flaking if the rule is too dull."

If the knife contacts the plate, the top of the knife becomes flat, losing its sharpness. The knife then becomes a blunt object that requires more force to be pushed into the die, and the quality of the product suffers.

According to Putch, switching to a non-metallic cutting surface and a more aggressive serrated knife will not make up for an

**...adding a cutting pad to make up for a worn or unlevelled press will result in damaged knives, a rapidly worn cutting surface and excess pressure on the press.**

See CLAMSHELL page 12

## CLAMSHELL

Continued from page 10

A neglected lubrication system, human error and running a press out of level are the key causes of machine downtime and failure.

uneveled platen. Putch, who has assisted My Press Needs and Dicar in the development of the Soft Cut™ system, said adding a cutting pad to make up for a worn or uneveled press will result in damaged knives, a rapidly worn cutting surface and excess pressure on the press.

“The Soft Cut system may keep the cut edge from being damaged on an unbalanced press,” said Putch, “but the knife will bend and flex because it’s being forced to cut much deeper into one side than the other. Eventually, the pad will wear out. Don’t ignore the fact that the press has to be level.”

And don’t ignore the other ongoing maintenance needs of your clamshell. Letting the

press run with no attention to its condition will shorten its lifespan and the value of your investment. A neglected lubrication system, human error and running a press out of level are the key causes of machine downtime and failure. A solid preventive maintenance plan (internal and external) is the best way to ensure your clamshell will run at peak performance and reliability. ■

*Rob Weidhaas, Jr. is the founder and president of My Press Needs (MPN) LLC. He has more than 25 years’ experience in the converting industry with an emphasis on clamshell press technology, and established MPN in 2000 as a diecutting resource to the print finishing, packaging and general converting industries. Today the company specializes in the development, engineering and sales of clamshell presses worldwide. Weidhaas is an active member of IADD, FSEA, SGIA and GPI, and serves as an observing committee member for the ANSI B65 safety standard for stand-alone platen presses. For more information on MPN, visit [www.mypressneeds.com](http://www.mypressneeds.com).*

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