

Whitney

METAL FABRICATION NEWS

Tool Wear Galling You?

To better serve our customers, Whitney has introduced TuffSkin premium tooling, a high performance tool which extends the life of tooling by three times in standard punching applications and up to 10 times under severe applications. TuffSkin achieves this life extension due to its high lubricity, abrasion resistance and high compressive strength. Unlike some coated tools, TuffSkin maintains its performance even after regrinding.

TuffSkin gives you the ability to efficiently produce some holes that were previously difficult and costly to achieve.

*by David White • Tooling Sales & Marketing Manager
and Morrie Earnest • Sales Manager*

attributes, this machine has the capability of punching mild steel through a thickness of 1". With 100 tons of punching power, it quickly became evident that the machine could perform punch and shave operations for thick material, eliminating drilling in some applications. However, with this new capability came challenges in creating a new tool that would stand up to the punishment of the shaving operation.

Without a doubt, punch and shave is the most brutal tooling

application for CNC machines. The punch and shave technique has been used by Whitney customers for many years generally in materials 1/2" thick and less to achieve a straight hole with minimal breakout due to die clearance.

Punch and shave is a two hit process with the first hit making a standard punched hole. The second hit uses a slightly larger punch with a tight die clearance. As the second punch enters the material it shaves it, in a broaching fashion, producing a doughnut shaped slug.

This broaching action creates additional friction and after just a few hits can cause the material to weld to the sides of the punch. As more strokes are made, more galling takes place until the punch is beyond repair.



Whitney TuffSkin tooling extends the life of tooling by three times in standard punching applications and up to 10 times under severe applications

TuffSkin helps eliminate the factors of galling. The sides of the punch have the effect of being more lubricating and creating less friction than standard punches. This slippery surface prevents galling and buildup of heat.



Figure 1. Pre-punched hole (normal die clearance)

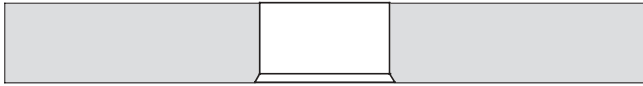


Figure 2. Second shaved hole (tight die clearance)

Common applications for punch and shave include making straight holes for tapping. A standard punched hole would reduce the full penetration of thread through a significant portion of the material. Often when creating a hole for tapping, the thread diameter is equal to or less than the material thickness.

Within limits, TuffSkin allows us to punch holes less than material thickness. This is due in part to increased compressive strength of the base material.

Another application is providing better hole quality for connecting pins. With severe breakout, the pin might rock back and forth producing a wear point and premature failure.

Better hole quality is also often needed for bushings and other guiding devices. The better hole can eliminate drilling so the bushing can be pressed into place.

Stainless Steel

Stainless steel is one of those materials that is difficult to punch in any thickness. In thin sheet we try to reverse the punch just after it enters the material and creates the shear.

In heavy stainless plate punching we often power the punch completely through the material effectively driving the slug into the die. This causes the punch to heat up and galling occurs on the sides of the punch. The added lubricity of TuffSkin reduces tool wear.

One customer, Arrowhead Conveyor, Oshkosh, Wisconsin reported substantial increase in tool life with TuffSkin. Tim Krueger of Arrowhead provided feedback from the testing. "Reluctant to jump in with both feet, we began testing on one of our high use punches.... Test results have shown that tool life has increased significantly."

But longer tool life is not the only benefit. "The benefit we see with the TuffSkin tooling is not the cost but the time

saved with the extended life. Compared to the standard tooling we will only be changing and sharpening the TuffSkin tooling once compared to four times. The savings can even extend past the shop floor into purchasing, receiving and even on shipping costs when you reduce the number of purchase orders."

Perforating

Perforating often involves punching hundreds or thousands of holes in a plate of material. The high duty cycle and heat issues can reduce tool life, especially when combined with small hole sizes.

Karen Taylor of Seguin Fabricators tested Whitney TuffSkin tooling in one such application. Taylor says, "Seguin Fabricators, Ltd. began testing the Whitney TuffSkin tooling product after having short tool life problems with a .531 square punch through 1/2" A36 material.

"We spoke to David White, Whitney Tooling Sales and Marketing Manager, about the problems we were having with this particular application. It wasn't long before he



Punch and shave slugs

talked to us about testing TuffSkin tooling on our next run on the .531 square punches.

"The TuffSkin generated three times more hits than the standard tooling before requiring sharpening. In fact,

we got nearly four times the hits of standard tooling after being ground. The additional up front cost of the TuffSkin tooling over standard tooling will more than pay for itself in a very short time..."

Regrind

Whitney solid body flat faced punches have 7/16 worth of grind life on the face of the punch. In the past, conventional coatings would flake off the sides of the punch soon after the face was ground for sharpening. This reduced the effectiveness of the punch.

With TuffSkin the punch will not lose its effectiveness when sharpened. Test results by Whitney customers indicate the punch life is extended even after grinding.

TuffSkin is available for 28XX, 36TC, and 44TC Whitney style tools.

Interested in learning how TuffSkin can make your life easier? Call your Whitney representative today. ♦



W.A. Whitney Co.
AN ESTERLINE COMPANY

650 Race Street
P.O. Box 1206
Rockford, IL 61105, U.S.A.

Tel: 815-964-6771
Fax: 815-964-3175
www.wawhitney.com