

Ironflower Tips-Carbide Grinding Guide

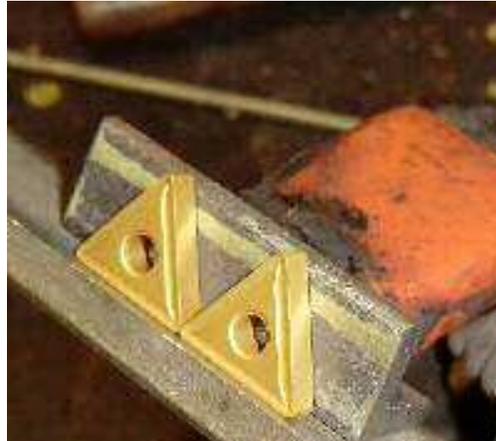
Steve Bloom

Ever messed up plunge cut or cursed a wobbly belt? You can hope to solve that problem with an expensive grinder or maybe with 30 minutes and a few bucks.

Acquire 4 to 5 inches of $\frac{3}{4}$ " x $\frac{3}{4}$ " x $\frac{1}{8}$ " angle iron (big box store and under \$5 gets you 36"), some carbide milling inserts (10/pkg for under \$10 – useenco.com #), a few 8-32 cap screws and some JB Weld.



The Mark One required tapping bolt holes to secure the inserts to the angle. By clamping the angle to a flat bar, you can easily position the inserts side-by-side and flat to the bar as shown. For clarity, I'll refer to the flange of the angle with the inserts as the 'face' and the other flange as the "clamp surface". A few drops of superglue will keep them in place when you carry them over to the....



drill press. For these inserts, a #26 bit just fit into the center hole and was used to create a shallow divot. A #32 bit was needed for the tap and the divot insured that the hole was centered in the insert. While at the drill press, vise grip the clamp surfaces together & run the #32 bit through both pieces close to the ends of the angle. Separate the two and run a #18 through the holes in one of the pieces.



A few minutes with a tap and the four holes were ready for bolts to lock the inserts to the angle iron. Also tap the holes in the clamp surface that was not opened up with the #18 bit.



The image to the right is what you get when the unit is assembled and clamped onto a blade. It was at this point, I realized that those bolt heads were going to prevent the inserts from touching the side of the grinder platen. The solution.....



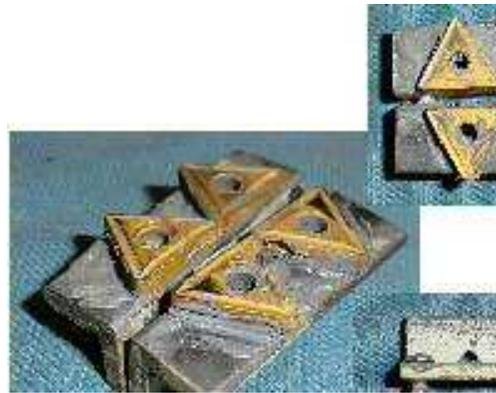
was JB Weld. You can use the bolts to hold the inserts in place while the JB sets up or...



just use some spring clamps. If you do, you can blow off all the drilling and tapping to hold the inserts in place but you still need those close-fit and tapped holes in the clamp surfaces.



When the tool is finished, it ought to look like these images. Depending on how thick and wide your blades, you may want to adjust bolt length and separation.



Finally. The unit is in place at the desired location for the plunge cut (carbide towards the tip).



So go to the grinder, run the belt to the edge of the platen and grind away as shown. The belt won't cut the carbide (true even for ceramic belts). Make the plunge cut on one side, then flip the blade over and repeat on the other. That was EASY.



We're not quite done. Ever make a hidden tang blade and discover the shoulders are quite square or you want to change the angle but the blade is already heat-treated and sneers at a file. Well....



flip the tool over with the carbide to the tang (the vise grips were needed because the bolt separation was a smidge to close given the width of the blade) and align the carbide faces with the desired new angle.



The image to the right shows the original profile, the tracing of it, and the desired adjustment. With the tool in place and about 30 seconds on the grinder, you get...



a nicely adjusted set of shoulder, square to the spine and each other and ready for a guard. You've got to admit, that was pretty slick too, no?

