

PRODUCT REVIEW of

ACCU CUTTER's

Model 4001 Shear

By J. Stephen Spence

For information on Accu Cutter's Model 4001 Shear or any Accu Cutter Company product, please call 717-241-2330 or visit www.accucutter.com.

Over the years, I've used a lot of shears ranging from the dinky to the one-half ton goliaths. Having a background in commercial printing, I've also used a fair number of paper cutters and I've often wondered why someone didn't take the good from both worlds and combine them into a shear for cutting plastic or metal—one that could actually make a square cut!

Don't misunderstand, most shears do a pretty good job, but by their very nature, they do present some challenges. Not the least of these challenges is their inability to cut something really, really, square. Add to that the fact that most shears are very limited as to what they can cut. For many, even a thin sheet of stainless steel will wreak havoc with the blade and I've even seen people break the handles or the base casting trying to cut thin stainless. Indeed, most of the tabletop shears in use in the industry started out as tile cutters!

In today's engraving world, the variety of materials we need to cut is growing. The days of cutting nothing but .020" aluminum and brass are gone. Now, there's chrome and nickel and even stainless steel to contend with. And as for aluminum, that's growing too, with more and more engravers needing to cut metal that's far beyond the limits of .020"-.025". We need to be able to do this with a tabletop shear. There just isn't room in our shop for a huge floor model shear—or in our budgets either, for that matter.

What we need is a tabletop shear that's built tough enough to withstand some serious cutting and actually do a good job to boot, without exploding like a can of biscuits when put under some serious pressure.

And thus is the introduction to Accu Cutter's new Model 4001 shear. The version I tested had blades for cutting metal, but the shear is capable of housing either metal or plastic-cutting blades. This tool is a "little beast." I say little because it sits on a tabletop with a footprint of approximately 19" wide x 24" deep, but a beast nonetheless. Weighing in at 105 pounds (shipping weight is 135 lbs.), and built tough enough to make a Ford truck blush (for those who don't watch commercials, Ford's slogan is that their trucks are built "Ford Tough"), this shear means business!

No, it isn't cheap. The price tag is just under \$1,000 in the U.S., but this is a shear you won't have to replace every few years either. Hand machined for precision, this baby is built to last.

I should also say there's another model of this shear called the 3001 that isn't as robust for \$725. The 3001 comes in the same 13" size as the 4001 and also comes in a 19" size for \$1095. The 4001 is more robust and capable of cutting thicker materials. Hey, if you are going to invest \$700, what's \$300 more?

The cutting capacities for the 4001 and its cousin the 3001 are shown below:

4001	3001
Aluminum	
.080"	.040"
Engraving Plastic	
.125"	.125"
Hard Brass	
.060"	.025"
Mild Steel	
.035"	.020"



Accu Cutter's Model 4001.

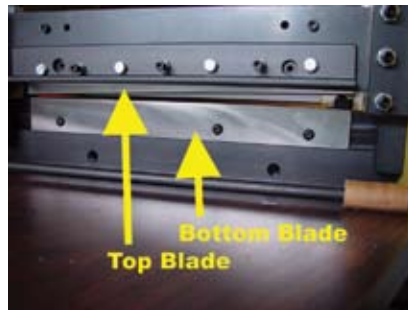
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So why is this shear such a great shear? Yes, the 4001 is built tough, but that's what a shear is supposed to be. This isn't the first shear to be built tough. The real magic for me is in something called a "Flip-up Hold Down Bar." For years I ran an in-house print shop and almost daily would use a hydraulic paper shear that was capable of cutting 24" wide paper stacked 3" thick and cut it absolutely straight and square every time. There was no pulling or twisting of the paper because the paper was held down by a hold down clamp that exerted tremendous pressure on the paper.

One of the biggest problems with using a shear (any shear) is that they pull or skew the material slightly while cutting it. The duller the blade or the tougher the material being cut, the more it pulls. Some manufacturers tell users to knock the side guide (ruler) out of square by a degree or two to compensate for this problem. Unfortunately, that doesn't really help because while 2° might compensate adequately for a sheet of soft metal 12" wide, it will overcompensate for a piece 6" wide. The 6" piece needs only a 1° shift. And if the metal is hard rather than soft, the angle is different yet. Consequently, it's very difficult to cut material (plastic or metal) that's truly straight or square with a light duty benchtop shear.

The 4001 has dealt with this problem by adding a hold down bar much like the ones on commercial paper cutters and it works! Best yet, not only does it work and serve as a safety guard to keep careless fingers from getting too close, it can also be raised when not needed or just to give an unobstructed view of the material being cut or access to the blade. Well done Accu Cutter! The Flip-up Hold Down Bar is a long overdue stroke of genius.

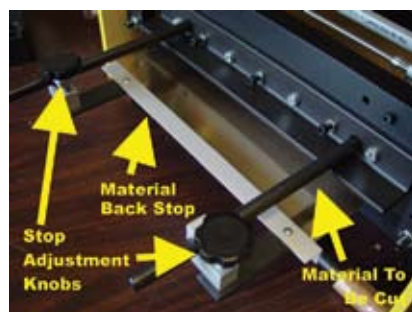
Hallelujah, again, the 4001 is a 13" shear! How many times have you needed "just a little bit" more than 12"? Even a quarter of an inch would have made all the difference, but alas, your shear, like mine, is 12", not 12 1/4". Not only does the extra inch on the 4001 come in really handy from time to time, it also provides a better cut by allowing the blade to gain momentum prior to actually striking the



By bolting the top blade onto the cutter frame you get a much cleaner cut and greatly reduce the burrs generally left on the metal when it's cut.

metal it will be cutting.

The 4001 is a "guillotine style" shear. There are two types of shears used in our industry. The guillotine style cutters usually have a blade in the back of the shear that goes up and down vertically so the angle between the blade and the work remains constant. The other type of shear, called a scissor-action shear, is much like an old-time paper cutter where the blade actually pivots like a big lever, so the blade angle changes from one side of the cut to the other. Everyone has his or her preference, but I've always been a guillotine man and have never used anything else in my shop. It's my opinion that the guillotine design doesn't skew the material as much and provides better leverage. This is certainly true with the 4001. The 4001 makes repetitive cuts easily and accurately. When I first saw the setup for making repetitive cuts, I wasn't sure I would like it, but after doing some jobs, I was quickly won over just because it isn't only fast, but it's deadly accurate. Every cut I made was straight and square. A se-



The Stop Guide insures each sheet of metal will be cut at precisely the same size. The adjustment is quick, easy and very accurate.

ries of strips I cut varied hardly at all from end to end, thanks to the unit's full 12" long back gauge.

The back gauge works very, very well; it does insure straight cuts up to 12", repeats itself perfectly each time and because of the highly detailed and visible ruler (1/16" increments), it's accurate. This is the first cutter I have ever seen that had a back gauge I would actually use. In conjunction with the Flip-up Hold Down Bar, it is really hard to cut something that isn't straight. I did make a bunch of cuts on .025" brass and they varied less than .003" over 12". If I'd been really, really careful, it might have been closer, but I wanted to push and chop just like I would in a real job where I needed 1,000 pieces.

The back gauge is set using a "guide" that's nothing more than a sheet of metal cut on the shear. Once cut, you add a ruler beginning 2" from the leading edge of the metal (this is the dead space between the blade and the existing side ruler). To set the backstop, just position the guide so the ruler on the guide reads the size metal you want and is positioned at the "0" mark on the shear. Bump the back stop tightly against the guide and tighten its two screws. This sounds complex, but it's really easy.

The system requires using a partial sheet of material that has been cut straight with the 4001, then applying a special ruler (provided with the shear) for making the actual adjustments. The thing I learned to appreciate most about this system was its accuracy. While many shears use sloppy, mal-formed guides that have rulers stamped in them, these rulers are printed, allowing much more precise tick marks (1/16") and therefore, allowing for much finer adjustments when cutting material. The yellow and black rulers are highly visible and easy to read, even in poor lighting conditions and can be replaced easily should they become worn or damaged—something that isn't so easy with some shears.

The 4001 is American made. Unfortunately, this no longer serves as an indicator as to the quality of a product like it once did, but I like to buy and use American made products and in this case, "American Made"

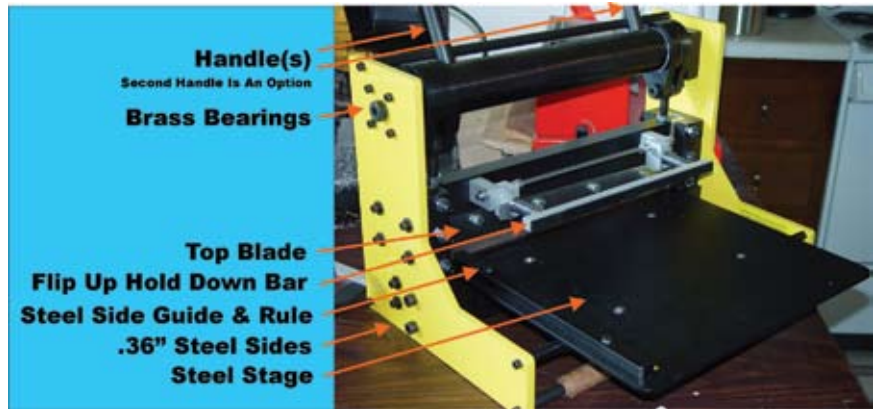
does mean quality workmanship and design.

Both the top and bottom blades on the 4001 are interchangeable and they don't use the old eccentric adjustment screws. Anyone who has tried to adjust a cutter with eccentric screws understands the value of this feature.

The 4001 offers two handles, one long & one short. Either may be placed on the right or left side of the shear. This shear is set up so you can move either handle from one side to the other, making it user-friendly for right- or left-handed individuals. At the time of purchase, the customer can choose either the long or the short handle. The standard handle is the longer handle as the shear was originally designed for heavy materials. The shorter handle came along later because it's more convenient to use and most people aren't cutting heavy materials on a regular basis.

Not only does the 4001 accommodate lefties, it also permits the use of a long or a short handle. The short handle which is approximately 18" long is more than adequate for cutting most materials. For those who will be cutting thicker materials however, a little more "oomph" might be needed. For those, the extra long, 24" handle is best. The long handle is also helpful for those who have limited upper body strength or are otherwise physically limited. Be advised, if you intend to cut some of the thicker metals with the 4001, I would highly recommend having the extra long handle. The extra leverage makes a huge difference. Both handles can be installed at the same time if you like. For testing purposes, I kept both handles in the shear and often tried both on a single cut. If you don't have any specific need for it, the short handle is more than adequate, but length equals leverage and cutting .025" brass with the long handle is like cutting soft butter with a warm steak knife—s-m-o-o-t-h.

The 4001 continues to amaze me with its cut. Now, I admit, I'm a little nuts, but I insist that all metal going out of my shop be "burr down" on all sides. This means I cut the metal four times, once on each side. When metal is cut, the side closest to the operator is always burr down while the piece



Accu Cutter's Model 4001 with its individual parts identified.

that falls off the back of the cutter is burr up. Burr up means the top edge is sharp—often, sharp enough to actually draw blood! In my mind, quality work demands burr down on all sides. This is easy enough with most any shear, but what happens when you need to cut really narrow pieces of metal? That is a problem. Most shears have so many safety guides you can't get within an inch of the blade to hold the metal for cutting. Even if you can, it's extremely dangerous! So how does the 4001 address this issue?

Through testing, I cut most metal jobs burr down on all four sides just like I always do, but when those small pieces came up that were too narrow to cut on all four sides on the 4001, I just did single cuts and, to my amazement, the burr up edges were so clean, they were almost as good as burr down—in fact, in most cases, I couldn't feel the difference! I presume this ability will deteriorate as the blades dull and I'll eventually see more of a burr up, burr down on metal, but I have cut a lot of metal thus far and the 4001 is doing just as nice a job today as it did on day one. The reason for this is the way the blades are mounted (for metal). Unlike many shears that have a vertical blade striking a horizontal blade, the 4001 has two interchangeable blades set in pockets and bolted in place. This creates a cutting action from both the top and bottom sides of the material resulting in a much smoother cut.

The 4001 is also available with blades for cutting plastic. Since blades for plastic and metal are very


different, the choice should be made when ordering the cutter and metal should never be cut with a plastics blade; however, plastic can be cut with a blade ground to cut metal.

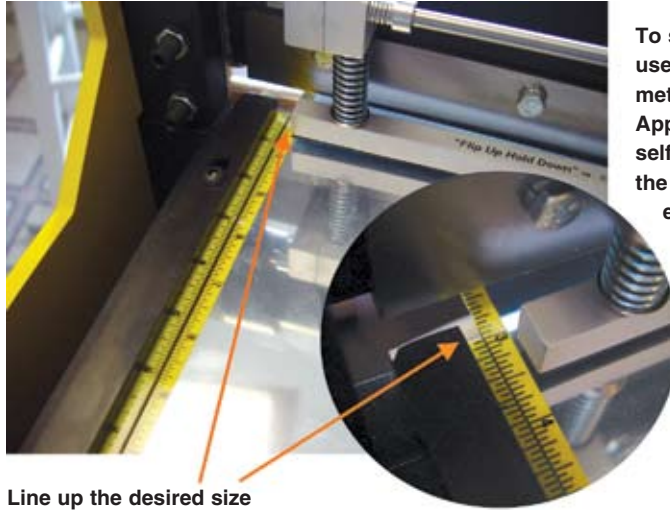
The blades for plastic have a sharper or finer edge which allows them to cut plastic smoothly and is also why they collapse or chip under the pressure of cutting metal. (They also chip on many acrylics.) The blades for metal have a flatter and stronger edge so they can survive the force of cutting metal. That same edge makes it difficult to cut plastic because they tend to compress the plastic before they start to cut it. That said, the blades for metal will cut the plastic, they just won't leave as nice an edge. And, with the 4001 and other shears that cut from both sides, the edge quality improves and is very acceptable in many cases when cutting the softer plastics like ABS & PVC.

I'm not sure what kind of bearings other shears use, but the 4001 uses oil impregnated bronze bushings. These are the same type of bearings used in heavy industrial equipment and printing presses. If properly maintained, they should last virtually forever. Unlike most shears I've worked with, the 4001 actually provides oil ports so you can maintain the shear properly. With a drop of oil from time to time and a sharp blade, there's no reason why this shear won't last a lifetime in the average trophy or engraving shop.

Some minor assembly is required: Although these are sometimes ominous words, only a few things like the drop off bar, handle and material deflector need to be assembled by

the user. These come with the shear and are simple to install taking only a few minutes. Everything else, including the blade, comes from the factory already installed and tested.

So, is the 4001 for everyone? Of course not. Neither is a Lincoln Town Car, but few would argue that there's little comparison between the Town Car and a Chevy Cavalier. Both give basic transportation, but that's where the comparison ends. Few people wouldn't like to have a luxury vehicle, be it a Town Car, some SUV, Lexus or a dozen others. Whatever kind of shear you have, I doubt if it compares to the 4001. I know my old shear sure doesn't. By comparison, the best thing I can say about my shear is that it cuts metal—so long as it isn't too heavy. (It doesn't usually cut it square, but it cuts it.) When I go over to the 4001, not only does it cut it square, it cuts it with ease, safety and with better accuracy than any shear I've ever used. No one likes the idea of dropping a grand on a shear, but hey, "you get what you pay for—if you're lucky" and in this case, you surely do get your money's worth with what has to be the best tabletop shear in the industry. Way to go Accu Cutter, I take my hat off to you! 



To set up Stop Guides, use a square sheet of metal engraving stock. Apply the supplied self-adhesive ruler to the edge of the metal exactly 2" from the leading edge. This becomes a reusable guide.

Line up the desired size with the end of the stationary rule, draw up the stop guide and tighten the knobs to hold it in place.

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