Many of you this year have seen me at tradeshows and have seen some of the jigs I have made to hold multiple medallions. These are used for many applications such as Diamond Scratch engraving of medals. In this article we will learn how to use the laser or engraver to make a jig to hold medals across a 12x24 engraving area.

Now remember that a jig can be different from a vise in that a jig does not need to clamp down so much and is more concerned with placement. For this exercise I will use CorelDraw to create the template to vector out the jig pattern on a laser so that we may create a tool that will increase our proficiency. There are already vises that will hold 1-3 medallions, but they are only useful on single unit runs. The problem with most of them is that the medals are not always the same precise diameter -- and if one is a little off then the vise will have a hard time holding all three firmly, and one or two of the medallions will engrave poorly as they may move while being engraved.

Here is a list of what you need to make your jig:

- 3-inch medallions (several of them, 40-50)
- 2 or more sheets of Rowmark Plastics
- A LASER (30 watts or better)
- CorelDraw, preferably ver.11
- An ENGRAVER to mount the jig to
- Table Tape from JDS (#H182 noted as Hand Tearable Tape)

**Phase one**: Make original single cutout: enter CorelDraw and size your page to 12x24 and draw a circle with the ellipse tool by holding down the Ctrl key to constrain it into a circle. Click on the circle and size it to 3.1 inches on the property bar -- better to be a little bigger than too small. Now draw a box straight up and down .450/.450 inches with slightly rounded corners (this allows for the top part of the medal that the ribbon attaches to). Next place the box into the top center of the circle. With a small overlay into the circle and weld them together by selecting both of them and click the weld tool on the property bar. Last item for this phase is that you need to be in hairline for line thickness -- we need this to vector.

**Phase Two**: is to position and copy our image that will be cutout; it needs to be placed in the upper left hand corner, .500-inch end and down. Now deselect it and on the property bar type in a duplication amount of 4.000 inches. This will create a .500 space between the cutouts to give the 12x24 top sheet stability. Next hit Ctrl-D on the keyboard, repeatedly until you comfortably fill the row across your screen, do not let one of them overlap off the page.

**Phase Three**: Next draw a long Box down the middle of the row left to right, placed in the center of the Circle area. Have it extend a 1/8 of a inch passed the first & last image on each row, have the box be .510 in height—this where the JDS table tape will go to hold the medallions in place. **Note** sometimes if we are diamond scratching with a lot of pressure or Hatch-filling TrueType fonts at .009 or less, we have to put a second row. Just position it .250 apart and center both as a group

**Phase four**: Now deselect and click the property bar, so that you may type zero (0.00) for the X-axis duplication amount and a –4.000 for the y-axis. Now select the whole row and hit Ctrl-D on the Keyboard to duplicate the rows down the plate. Again, do not let the rows duplicate off your page, and make sure the job is saved.

**Phase five**: put both the top sheet and bottom sheet of plastic into the laser at the same time, already taped together, and then focus to the material -- some laser focusing can be done on the download from the print driver. It depends on the Model of the laser. Go back to CorelDraw and send the job to the print driver. Verify that your Vector speed is 1.00 IPS per Second and Power is 35-45 % Power. Also put Vector Pulses per inch at 1000, and of course put in the 12x24 plate size. Once we have a green or start key on the laser, start the focused job

**Phase six**: weed the center pieces of the jig to reveal your jig of 18 medallions and mount it down on the rotary engraver with table tape. It is important to use table tape so you can get the jig off the engraving
table without breaking it. Next, put table tape into the long boxes or tape slot, double the tape up (that is two layers), and mount your medallions. **Note** this 3-inch jig slot will work for smaller medallions, as we will use a Top/center position reference in our Engraving Software.

**Final Phase, phase seven;** program in the engraving job. Size your single plate to 3 by 3 in your work space management and the multiple plate size to a 12x24. Then -- and this critical -- make sure there are plate offsets between the plates (and they are .500 on the X & Y). Now just put in the text and balance of the layout. On download of the job to your output screen, be sure to give it a .500 offset for X & Y, and choose top center as reference point, of course. Now there is one trick to make sure your placemen is correct, and that is to use the pen device to check your layout (with a capital X only in the text). If they align to the middle, you are there. A 1-inch tall X in Gothic should have cross hairs of 1.5 (X & Y) on 3.000 medallions. My program allows me to select the line or lines that are variable or different on each plate and copy input text into the selected line or lines. And input the information from a text or notepad file. If you're not that lucky, just copy the offset layout and sweep and replace the variable line or lines one at a time.

This jig could be made with a rotary engraver but you will need to factor the cutter offset to insure template correctness. As you use the jig over and over, remember to press down firmly on the medals after you mount them in the jig, if they start to move, then replace the tape.

**In review:**

- Phase 1: Create the single outline image
- Phase 2: Position and copy first row
- Phase 3: Make tape slot
- Phase 4: Copy additional rows down the jig
- Phase 5: Produce the jig with the laser
- Phase 6: Weed jig and mount to Engraving Table
- Phase 7: Lay engraving and input text

This procedure can be used for many shapes, and be recreated as the jig wears out. Last note, remember to think about your taping amount, you must get the medal off the jig without harming the part, the jig the engraving table or you the operator...

Good luck