

allow easy transfer to the panel or enclosure to be cut. Create hairline circles with cross hairs in the center to mark where holes will be drilled. The diameter of the hole should be chosen based on the width of the Dremmel cutting disc that would be used and the drill bit that would be used. Place the holes well inside the rectangle such that when drilled will not touch the rectangle. For enclosures made if thick material you may want to chain drill the entire periphery as explained in the D shaped slot section. This will make it easier to cut with the cut off disc.



Figure 2

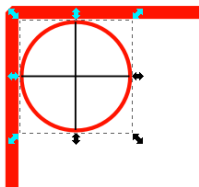


Figure 3

Laying out a slotted hole.

Laying out a slotted hole requires that you first draw a rectangle with the required dimensions. and chamfer at the corners. Place two crossed haired circles at the ends of the slot.

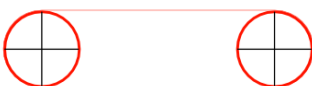


Figure 4

Laying out D shaped slots for D type connectors.

For D shape connectors with sides that are much smaller than the diameter of the cutting disc to be used, use the chain drilling method to layout the holes to be drilled. Calculated the number of holes to be drilled by dividing the length of the side by the diameter of the drill to be used. Smaller drills requires more holes but reduces the manual filling required to finish the cutout.



Figure 5

For holes with one or two flat surface, draw the required end result and also place cross-haired circles to be drilled with the required offset.

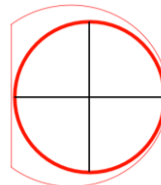


Figure 6

With the complete panel laid out and dimensions verified (measure twice, cut once rule), print the panel on a regular printer (laser preferred).

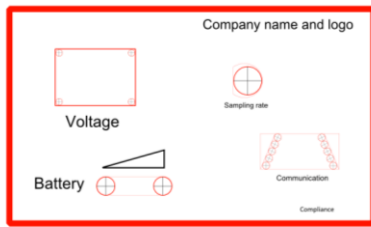


Figure 7

Use masking tape to protect the enclosure during machining. Care should be taken when selecting a masking tape that would not degrade when used with the glue in the next step. When masking the enclosure, make sure that the tape is overlapped to guarantee no untapped area.

Glue the printed layout on the surface to be machined.

Use strong glue when gluing the layout on the enclosure. Using Spray-on fabric glue results in a good uniform coat and does not require manual spreading. At this point the enclosure should be completely covered with masking tape and the pint out of the panel should be glued to the surface that will have the holes and cutout.

Center punching the cross hair for drilling

Use a center punch to punch the cross hair on all the circles. The chain drilling requires lots of punching. We have found that the automatic punches as the shown does not require bottom bracer support when punching. This results in accurate placement of holes and it does not deform metal enclosures.



Figure 8

Drilling

The best tool to drill the holes is a drill press. However for Dremmel and hand operated drill can be used but it requires some skill to get good results.



Figure 9



Figure 10

Cutting using Dremmel cutoff tool

When cutting the enclosure panel with the cutoff tool, do not use too high speed and pressure. Allow the machine to gradually cut through the material. You also need to manage the heat generated during this process since too much heat may compromise the coat on the enclosure. When cutting the slots and rectangle, be sure to cut inside the cutout such that the outline of the shape will remain on the enclosure. This is needed as a guide to finish the cutout by filing

Filing and finishing the cutouts

When filing straight side of the slots and cut out, care should be taken not to file perpendicular to the face of the panel. Set the file at a slight angle while filing. This will produce straighter sides in the cutout.

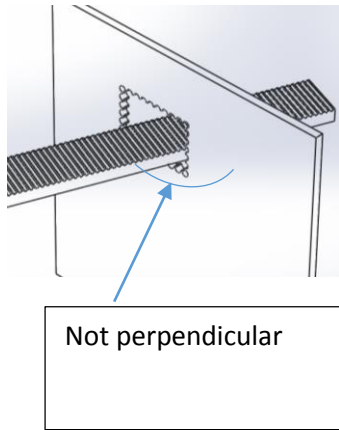


Figure 11

Finishing up

After completing all the holes and cutout you should deburr all the edges produced and remove the masking tape. Be cautious when cleaning any tape or glue. Do not use solvents. Some soapy damp cloth can prove to be very effective.

We provide cost effective Panel design and preparation services even at the prototyping stage. Some cases and panels are cut free of cost even for one unit. Please feel free to contact at

<http://www.iaasr.com/contact-us/>

Keywords:

Cutting instrument enclosures

Cutting instrument panels