

Friction Fitting Test

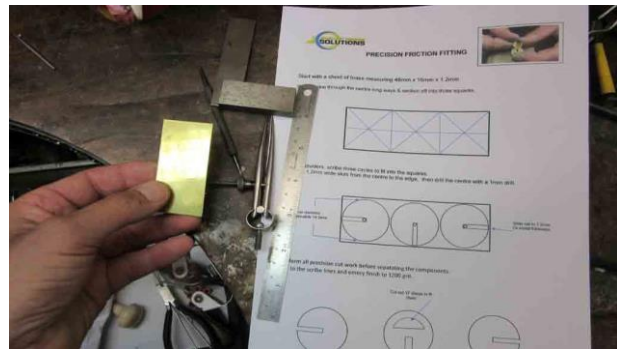


This tutorial demonstrates how to make a simple 2D to 3D pendant without soldering.

It is important that students learn cold joint techniques such as friction fitting & riveting before they are taught to solder. This ensures that solder isn't used as filler and that joints are prepared correctly before soldering.

1.

This project starts with a piece of brass sheet 1.2mm x 48mm x 16mm. Along with patience, you will need your measuring & marking tools including a good pair of dividers a drill and piercing saw.



2.

The sheet of brass needs to be squared off using a set square. This will ensure that the preliminary markings are accurate. Scribe a centre line long ways and mark two lines short ways to create three perfect squares. Scribe a cross through each square to identify the three centre points.



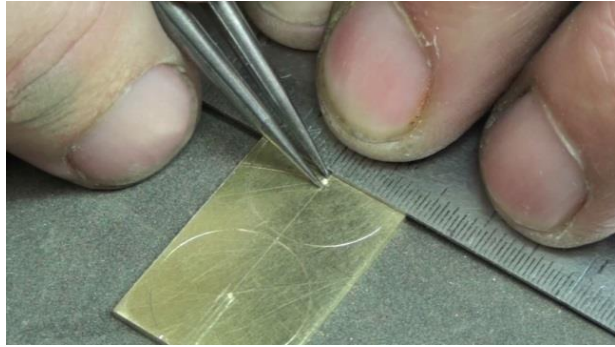
3.

Centre punch at each cross point. Set your dividers to scribe a circle inside the squares, making sure that you allow for the saw blade thickness and final file trimming. The circle diameter should be approximately 14.5mm.



4.

You now need to mark out the slots. Set your dividers to the metal thickness (1.2mm) this can be difficult if your dividers aren't cut out for precision work. Put the points of the dividers either side of the centre mark then place your ruler square to the work against your dividers. Scribe off the two ends & out from the middle.



5.

Mark out a 'D' shaped opening for a chain on the centre section, no less than 2mm between the outer edge and centre. Now centre punch inside the 'D' section. Use no bigger than a 1mm drill bit and drill through each punch mark.



6.

I generally use a 4/0 blade but to ensure you are using the correct blade, the rule of thumb is two teeth should make contact with the metal thickness. Cut out the 'D' section first as this can be used to test fit into the slots.

Make sure that you cut inside the scribe lines. You should also cut a square end to the slots a fraction past the centre to ensure that there is enough room at the ends during final fitting.



7.

Cutting out the slots is easier to do before you separate the components.

It is good practice to use your piercing saw to perform most of the cut work. Your blade should be perfectly square to the work. If your cutting is off angle the parts will not fit properly.

Fine tuning can be done with a barrette needle file once the off cut is close to fitting.



8.

Once you are confident that the two end circles will slot together, you can cut the components out. The centre slot will require more work once you have fixed the two together.

Again, ensure that you cut outside the scribe line to allow for final file trimming.



9.

File the outer edges to the scribe lines and sand to a pre polish finish. Emery finish the faces up to 1200 grit. Do not remove too much thickness as the parts may end up being too loose. Now fit the two parts together by hand. If it looks like they will slot all the way without distorting the metal, tap them tightly together on your bench peg with a nylon or hide mallet.



10.

You will now see that the centre component will need angle cuts to accommodate the cross section. This test will help you to use your piercing saw like a file.



11.

Piercing saw blades are splayed out from the centre line which makes it possible to use a side stroke action to file off metal rather than take off pieces. Side cut from the inside to the outer edge of the slot until the correct profile is created. Final preparation can be done with a barrette needle file.



12.

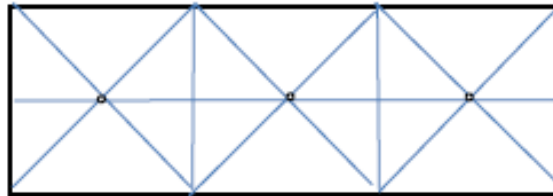
The final piece will take a while to get to the right shape. It is essential that there are no gaps and all the parts friction fit with enough grip that the three sections hold together firmly. This test has helped apprentices and online students appreciate how precision work should be mastered at the early stages of training.



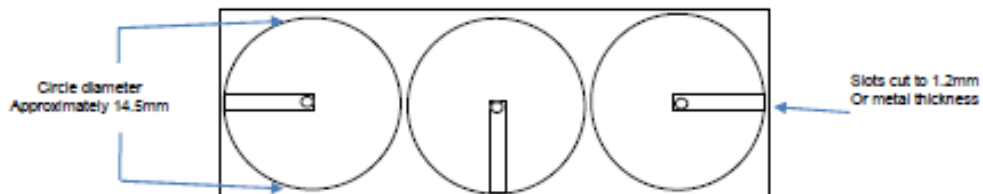
PROJECT WORK SHEET

Start with a sheet of brass measuring 48mm x 16mm x 1.2mm.

Scribe a line through the centre long ways & section off into three squares.



Using dividers, scribe three circles to fit into the squares.
Scribe 1.2mm wide slots from the centre to the edge, then drill the centre with a 1mm drill.



Perform all precision cut work before separating the components.
File to the scribe lines and emery finish to 1200 grit.

