

PIN-FITTING-GUIDE

This is to help get your PINS fitted in your newly printed TULIP mod.

TOOLS YOU WILL NEED

- Digital Vernier Calipers (to two decimal places).
- 3mm Drill Bit.
- Drill.
- 3mm PINS

You may have noticed that the PIN holes for TULIP are slightly too small / tight.

This is not unintended and has been carefully designed this way.

To PRINT the PERFECT hole size for the PINS is almost impossible as there are far too many variables. (extrusion, XY compensation, Material etc)

So this method has been devised in order for ALL users of TULIP to get the same results.

The pictures below shows the difference between the PIN diameter and the TYPICAL SCREW diameter (M3 threaded).



This is the difference between getting a nice fit for your bearings to be properly restrained so they work more effectively.



The PIN hole diameter is also just as crucial and the difference between getting a nice PRESS FIT / INTERFERENCE FIT and a LOOSE FIT is about 0.1 – 0.15mm (diameter) or 0.05 – 0.075mm (radius).

So if the PIN hole is slightly too big (3.12 as opposed to 3.0mm) it is the difference between having a RELIABLE mod or one that will FAIL to deliver.

The PIN holes in the CAD are 3.1mm and with (ABS) material shrinkage as approx 0.6% so in theory we should end up with a 3.08mm hole.

But in reality you are more likely to end up with what i have below (3.94mm) as material is dragged into the centre of the circle while material is being extruded. This TYPICALLY can be (Dialed In) by using XY compensation on internal holes in your slicer.



But for many we dont tend to tune in these settings, so we need to ****REAM**** out the PIN holes in order to get that nice ****SNUG**** fit.

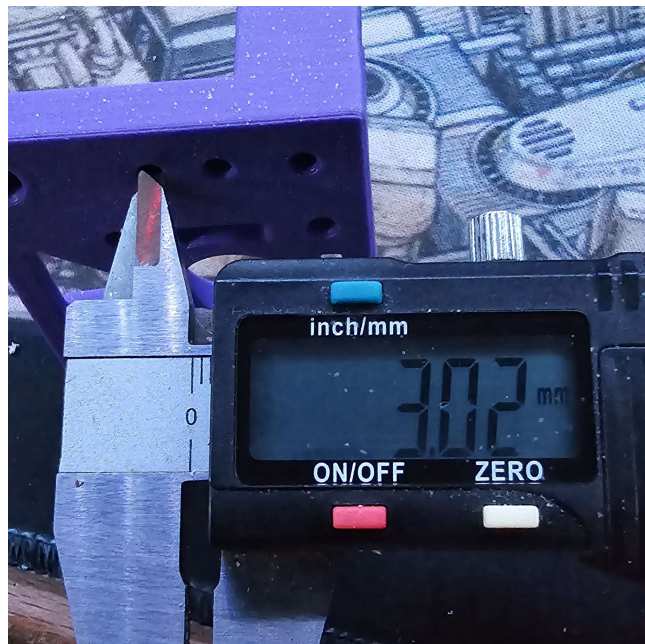
Get your 3mm DRILL BIT and measure with your CALLIPERS to make sure it is no more that 3mm. (lets face it, you just spend a few hours printing the parts, you dont want to ruin them now)





After you have confirmed they are good CAREFULLY REAM out the PIN HOLES!

Make sure to go ****SLOW**** here, it is easy to go too ****FAST**** and ****RUIN**** your prints! (ASK ME HOW I KNOW)





Now that we have ****REAMED**** the ****PIN**** holes you can now fit your ****PINS****
It should be a Good Snug Press Fit - This will mean that your PINS will stay PUT for a long time!