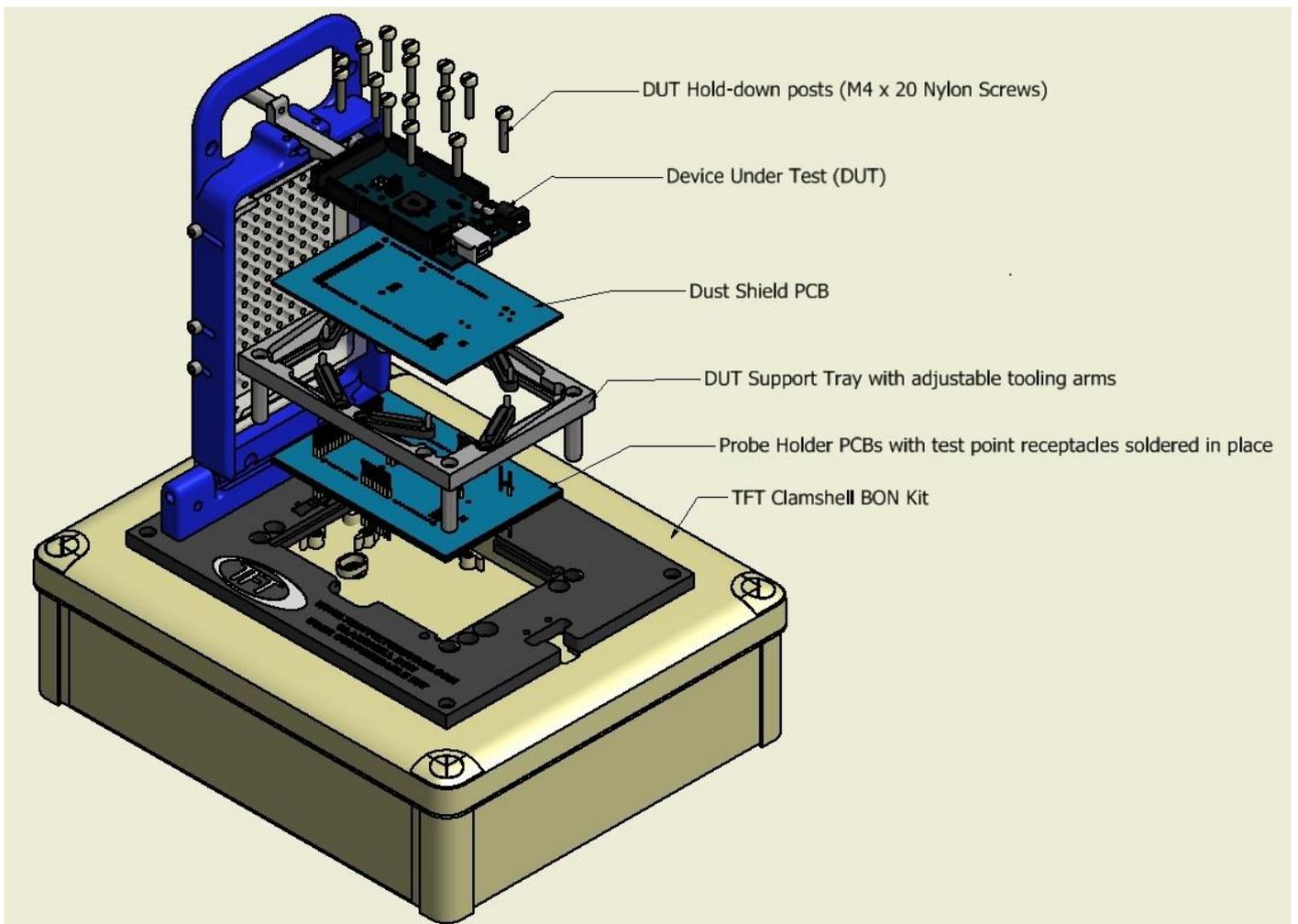
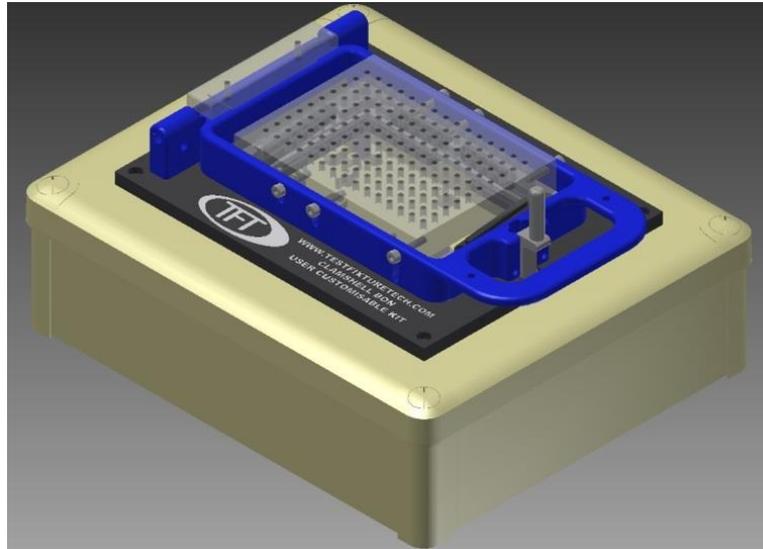




TFT Clamshell Kit

Fully user-customisable PCB test fixture kit



The blank fixture kit includes:

- 1) Plastic Enclosure, 291 x 241 x 86mm
- 2) TFT Clamshell Mechanical Fixture Assembly
This is a highly efficient, single-action mechanical test fixture with a hinged frame, precision pivoting DUT retention plate and spring-loaded DUT support tray including TFT custom adjustable DUT positioning arms.
- 3) 20 x M4x20mm Nylon DUT retention posts

Optional Items:

- 1) Test Probes and Receptacles
- 2) Additional DUT retention posts
- 3) Enclosure internal hardware mounting plate (aluminium)
- 4) Blank (not drilled) FR4 Customisation plates

Parts you need to supply, customise and assemble:

- 1) 2 x Test Probe Holder PCB – 120 x 80 x 1.6mm FR4
- 2) 1 x Dust Cover PCB – 120 x 80 x 1.6mm FR4
- 3) Test Probes and receptacles

Design Guidelines:

1) The Probe Holder PCB should be designed as follows:

- a) Overlay your DUT design on the 120 x 80mm footprint
- b) Center the DUT on this footprint
- c) Specify THP holes for every test point or connector lead that you wish to contact on the DUT
- d) All holes should be THP and include a suitable annular ring on both sides for soldering the receptacles in place.
- e) Hole diameters are determined by the test point spacing as follows:
 - For test points 2.54mm center-to-center – 1.75mm holes (after plating)
(to be fitted with 100mil probes – ECT Pogo-25 series or equivalent)
 - For test points 1.91 to 2.53mm center-to-center – 1.35mm holes (after plating)
(to be fitted with 75mil probes – ECT Pogo-1 series or equivalent)
 - For test points 1.27 to 1.90mm center-to-center – 1.0mm holes (after plating)
(to be fitted with 50mil probes – ECT Pogo-72 series or equivalent)
- f) These PCBs need not be any more complicated than this however, you do have the option to use them to route the test points to connectors for easier connection to your test instruments and internal test hardware.
You can include any suitable connectors on the lower PCB as well as signal conditioning hardware like load resistors etc. should you wish to do so but neither are required.

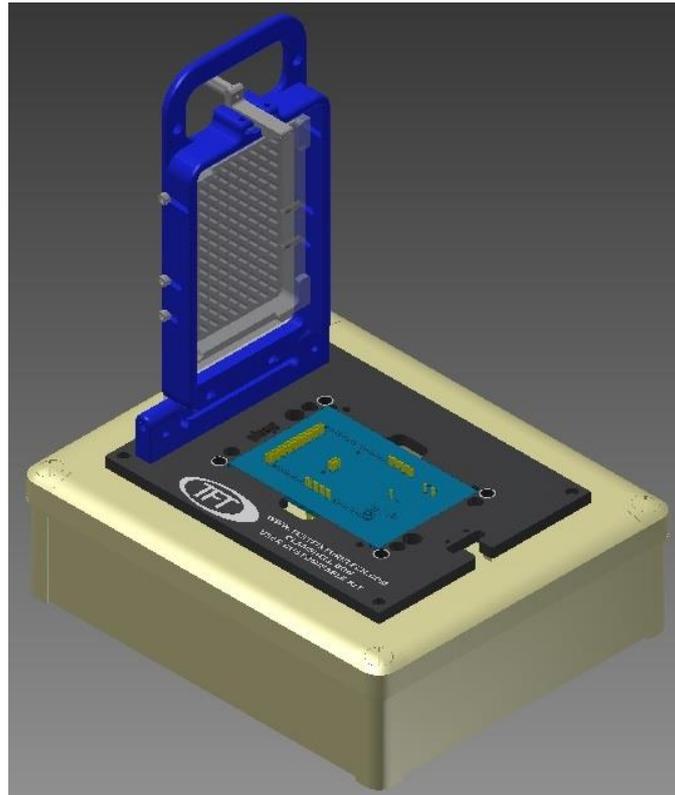
2) The Dust Cover PCB should be designed as follows:

This PCB is identical to the Test Probe Holder PCB except that the test point holes need to be larger – we suggest that to save design and origination costs, you actually have them made exactly the same and then manually increase the diameter of the holes afterwards.

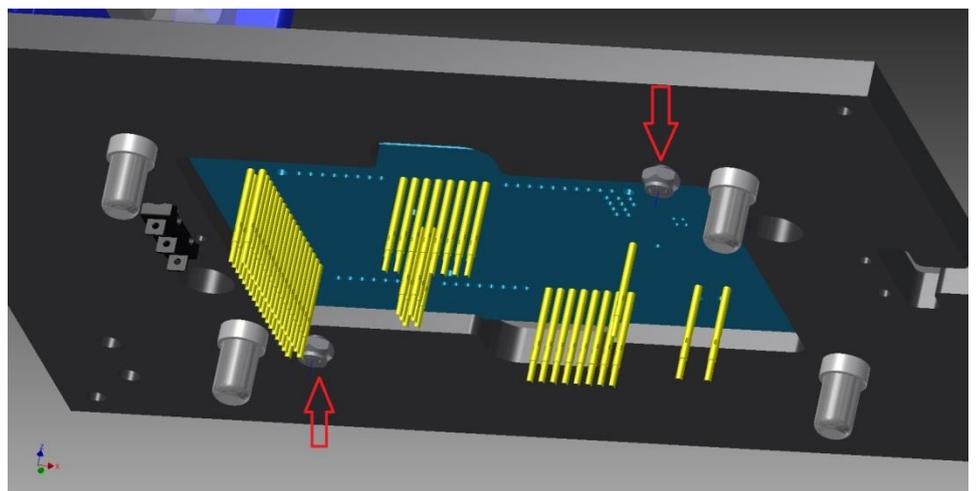
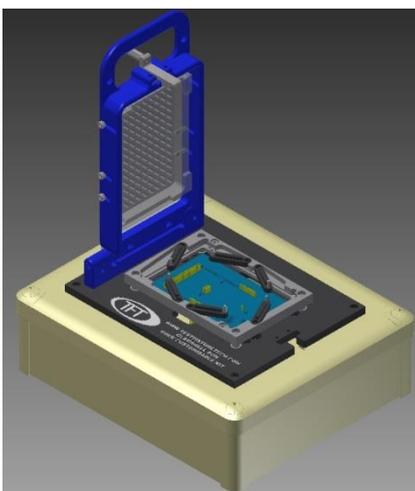
The holes need to have the following diameters again according to test point spacing:

- For test points 2.54mm center-to-center: 2.0 – 2.2mm
- For test points 1.91 to 2.53mm center-to-center: 1.55 – 1.75mm
- For test points 1.27 to 1.90mm center-to-center: 1.15 – 1.2mm

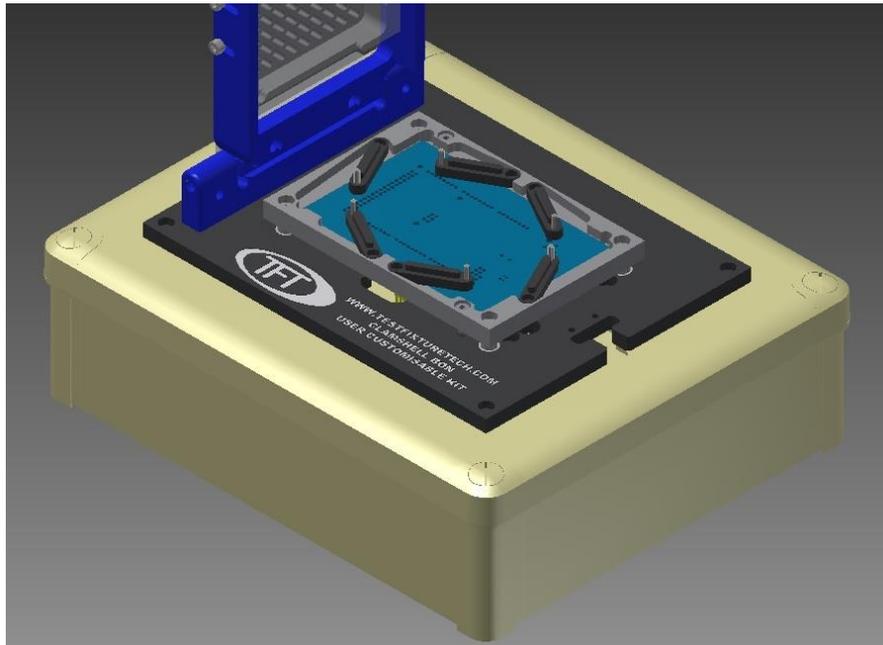
b) Insert Probe Holder PCB Assembly in top plate cavity



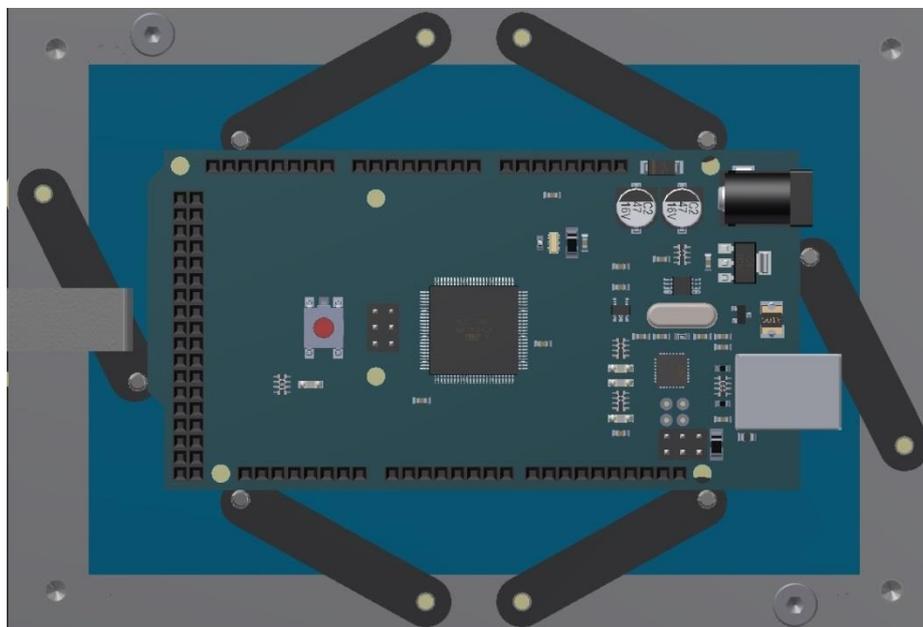
c) Replace DUT Support Tray taking care to align the 4 springs so that they fit in the pockets of both the top plate and the underside of the DUT Support Tray. Fit nuts on the two M4 travel-limiting bolts from below and tighten them until flush with the end of the bolts, this will create a gap of 6mm between the top plate and the bottom side of the DUT Support Tray.



- d) Insert Dust Cover in DUT Support Tray
Remove DUT Positioning Arms, place the Dust Cover PCB in the cavity below them and replace DUT Positioning Arms.



- e) Set DUT Positioning Arms
Align the DUT above the test probes and position the DUT Positioning Arms snug on each side of it (2 arms on each long side and 1 on each short side).
Tighten DUT Positioning Arm screws to fix them in position.



f) Fit DUT Retention Posts

Close and latch the fixture lid with DUT in place and fit DUT retention posts, as evenly spaced as possible in all free areas on the DUT.

Do not fit pots on SMD components as these may mask soldering issues and produce false-pass results.

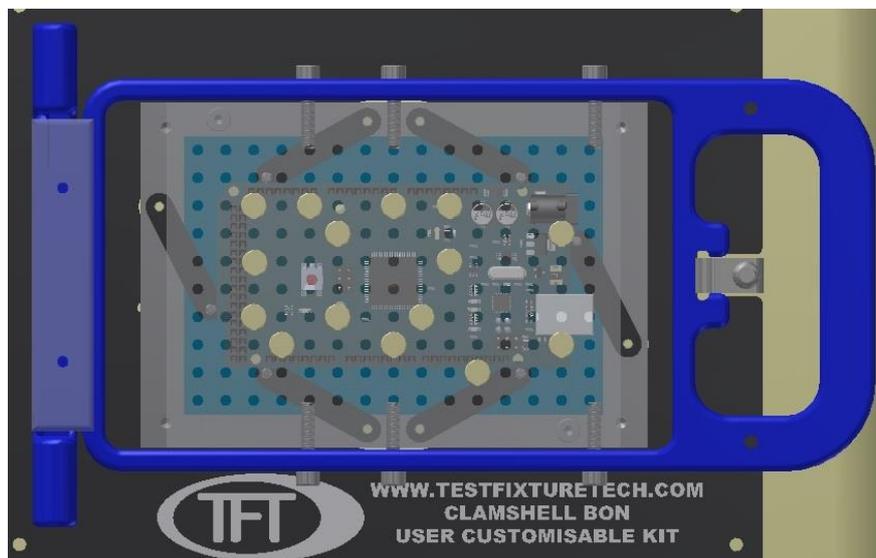
If there is insufficient open space on the DUT, you can fit posts on through-hole passive devices like connectors, etc. so long as they are mechanically strong and won't be damaged by applied force.

The retention posts must be screwed in to the point that they just touch the DUT, do not tighten any further than this as they will then apply force down on the DUT, stressing and potentially damaging it.

When the DUT retention posts are correctly installed, the fixture lid should close as easily as it did without them in place, they are there purely to support the DUT against the forces that will be applied from below the DUT by the Test Probes once they are installed. The retention posts are not to press the DUT down at all, only to prevent it from being pushed upwards.

Continually check that none of the posts are set too low as you install them by opening and re-closing the fixture lid after every couple of posts are installed.

If it becomes difficult to close, screw the last posts out slightly and check again.



g) Fit Test Probes (Pogo Pins) in receptacles.

Finally, open the lid, remove the DUT and press the DUT Support Tray down by hand so that the receptacles are exposed through the Dust Cover PCB.

Insert the Test Probes in the Receptacles and press firmly into place using a suitable plastic tool. NB: The Test Probes must be fully pressed down until the shoulder is almost flush with the top of the receptacle.



The fixture is now complete and ready to go.

The receptacles can be wired to your internal test hardware and connectors to external instruments.

If you require any further information, additional parts or have any problems with the assembly process, please email ClamshellKit@testfixtures.co.za and one of our engineers will assist.