



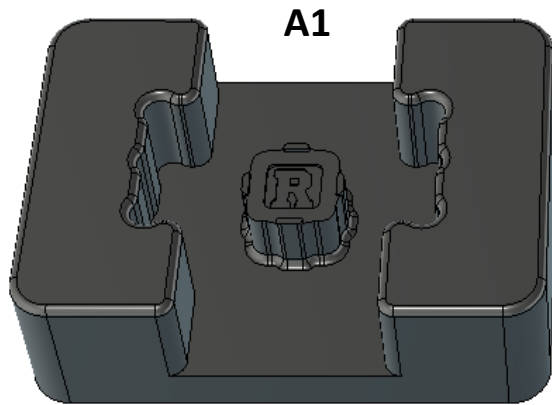
Rochester Membrane Integration Assembly

2020-03-03

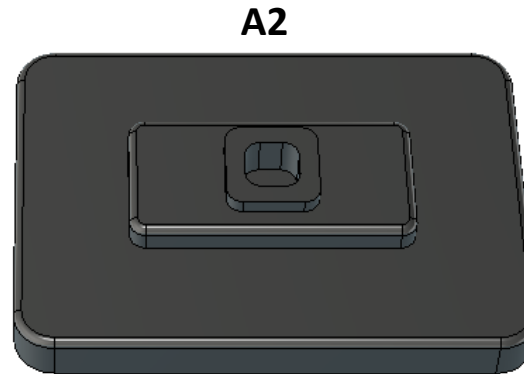
Prepared By: Riley Norman

Modified By: Molly McCloskey

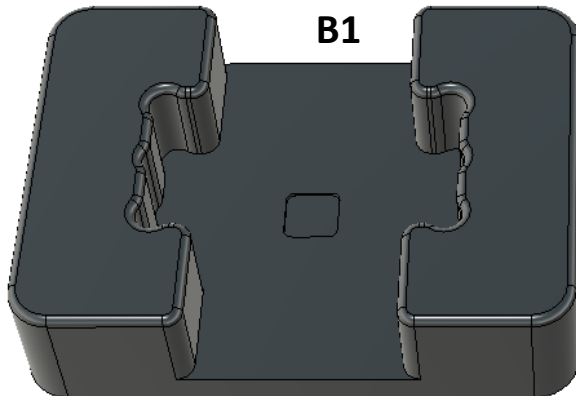
Overview



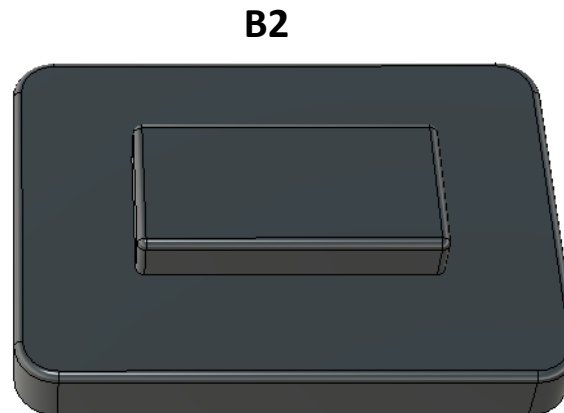
A1



A2



B1

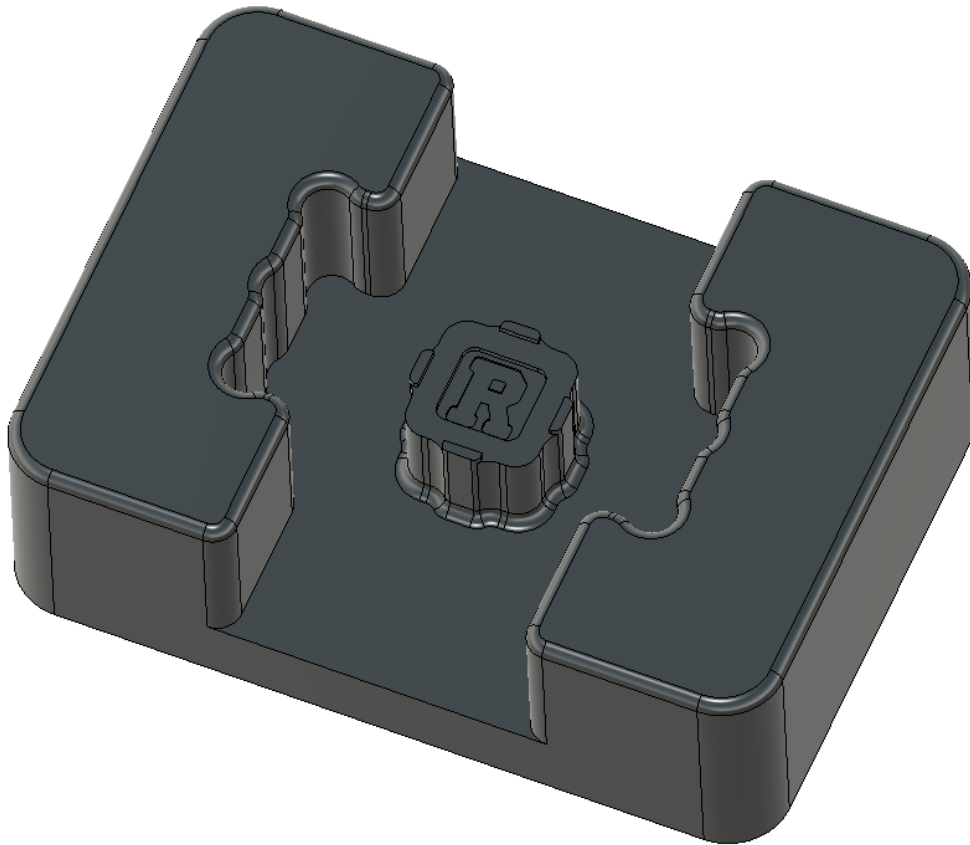


B2

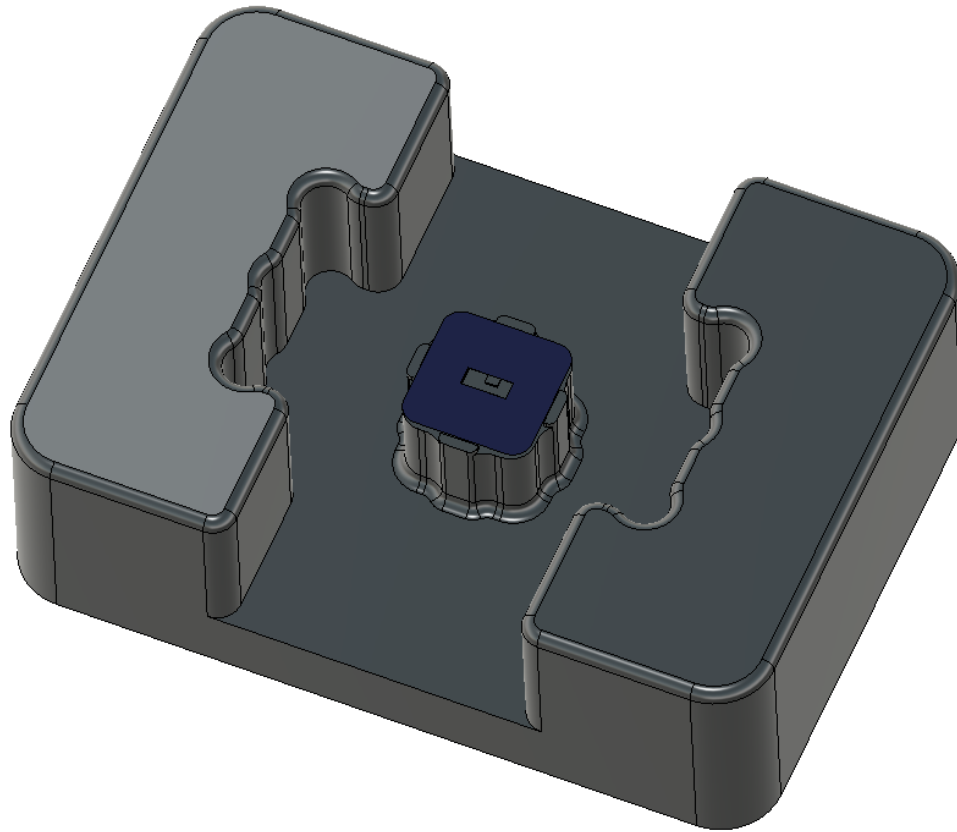
- **2 assembly fixtures with 2 parts each (see images to left)**
- **Components are placed on the 1 fixture (A1 or B1) then bonded using the 2 fixture (A2 or B2)**
- **Fixture A is used to bond the membrane chip to component 1**
- **Fixture B is used to bond component 1 to component 2 after bonding the membrane chip**
- **Assemble in clean environment, clear of dust, or in cell culture hood**

Step A1

- **Start with Fixture A1 (FA1)**



Step A2

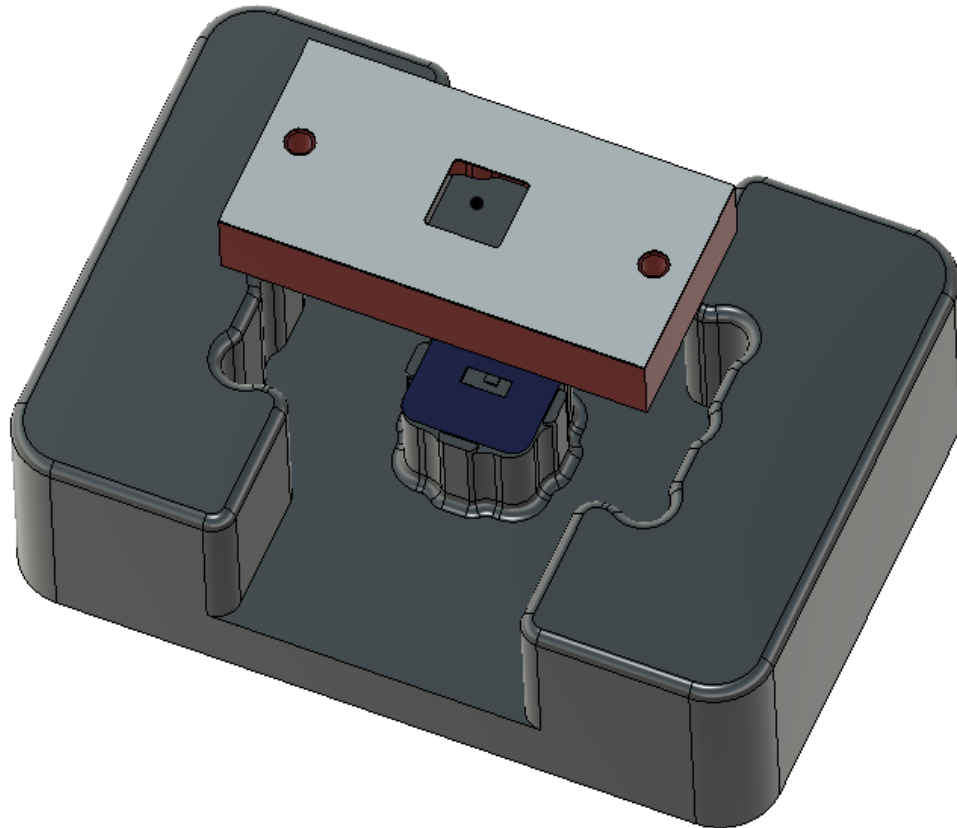


- Place the membrane chip onto the center section of FA1
- Ensure it is sitting flat

Trench-Up or Trench-Down

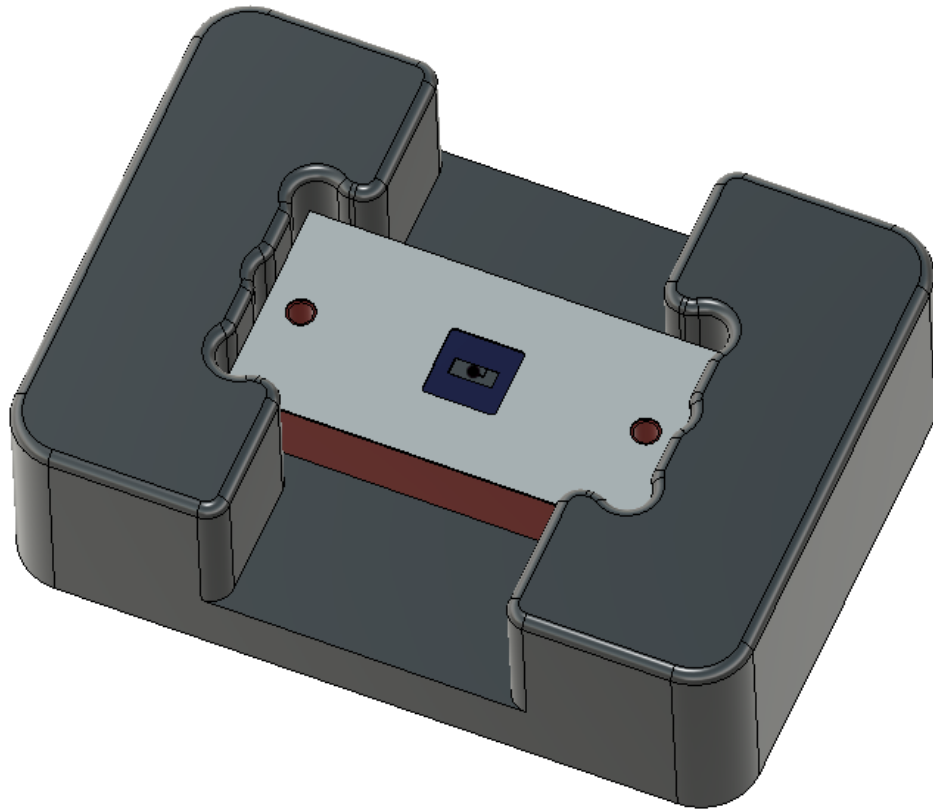
- Ensure the flat face of the membrane is facing up and the trench is facing down for Trench-Up devices.
 - Ensure the flat face of the membrane is facing down and the trench is facing up for Trench-Down devices.
-
- There is a cutout below the membrane it will not break

Step A3



- **Shave off excess material from snapping component 1 away from other components (if manufactured in snap off format)**
- **Remove the protective masks (blue, each side) from component 1 and prepare to place it in FA1**
- **Be sure not to remove pressure sensitive adhesive (PSA) layer with protective mask**
- **If protective mask looks burned, wipe with EtOH prior to removing. If it crumbles onto the component, wipe off from component with EtOH**

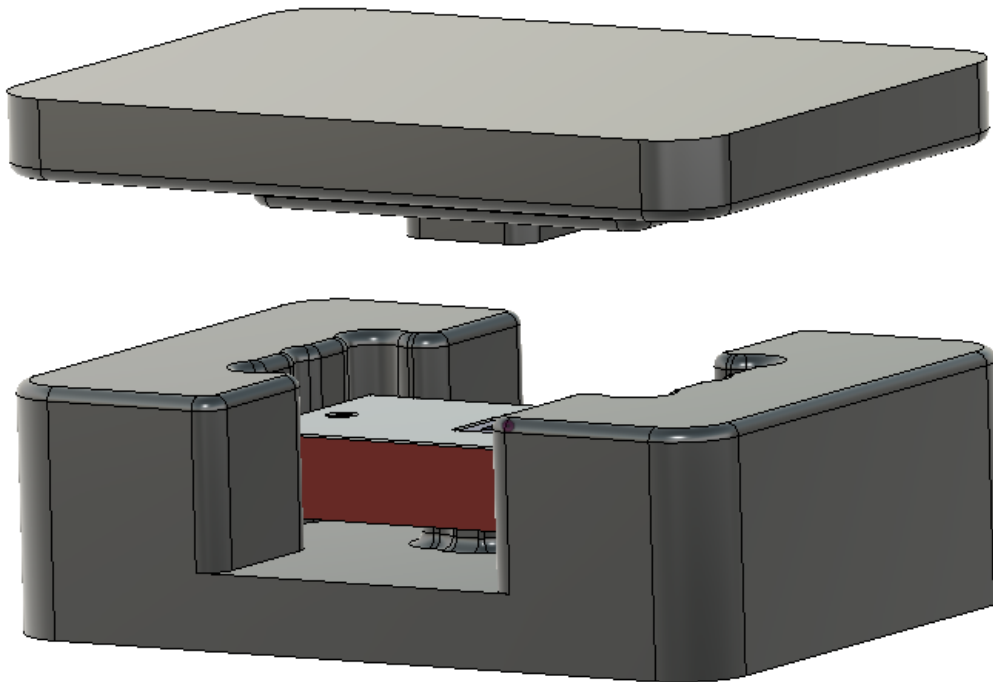
Step A4



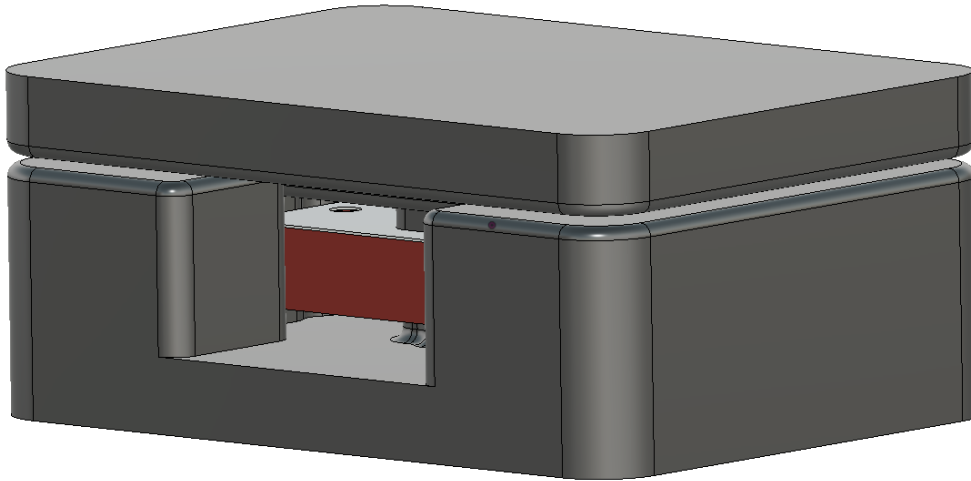
- **Press component 1 down into the fixture until you feel it touch the membrane**

Step A5

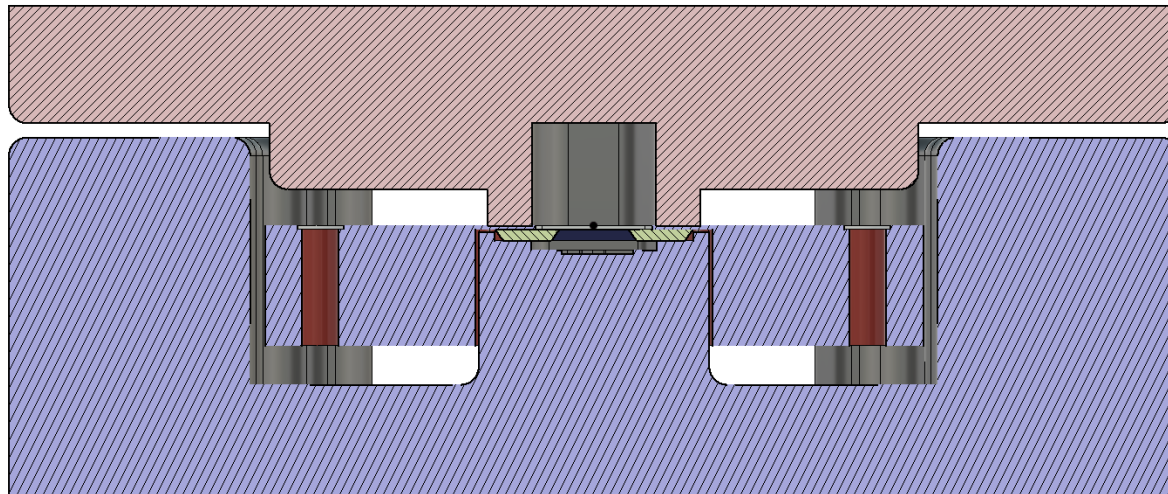
- **Prepare to press Fixture A2 (FA2) onto FA1**

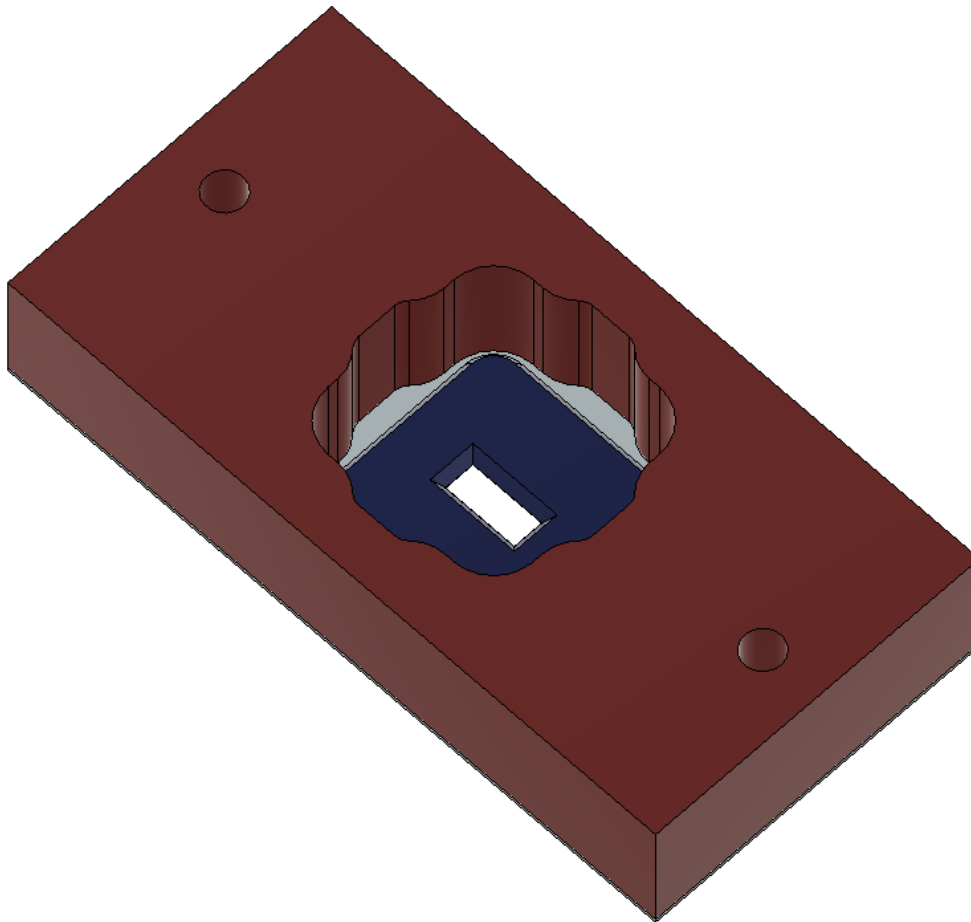


Step A6



- Press FA2 into FA1
- Apply firm pressure
- Apply pressure onto different corners of FA2 to roll the contact point around

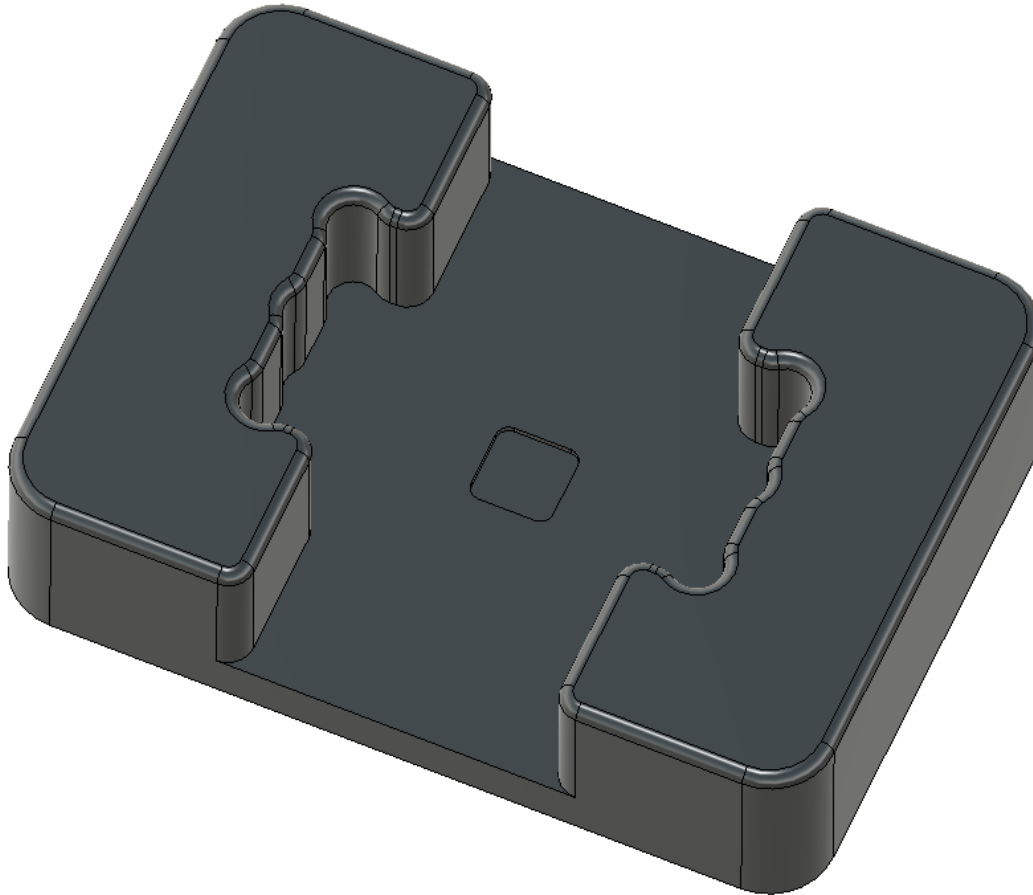


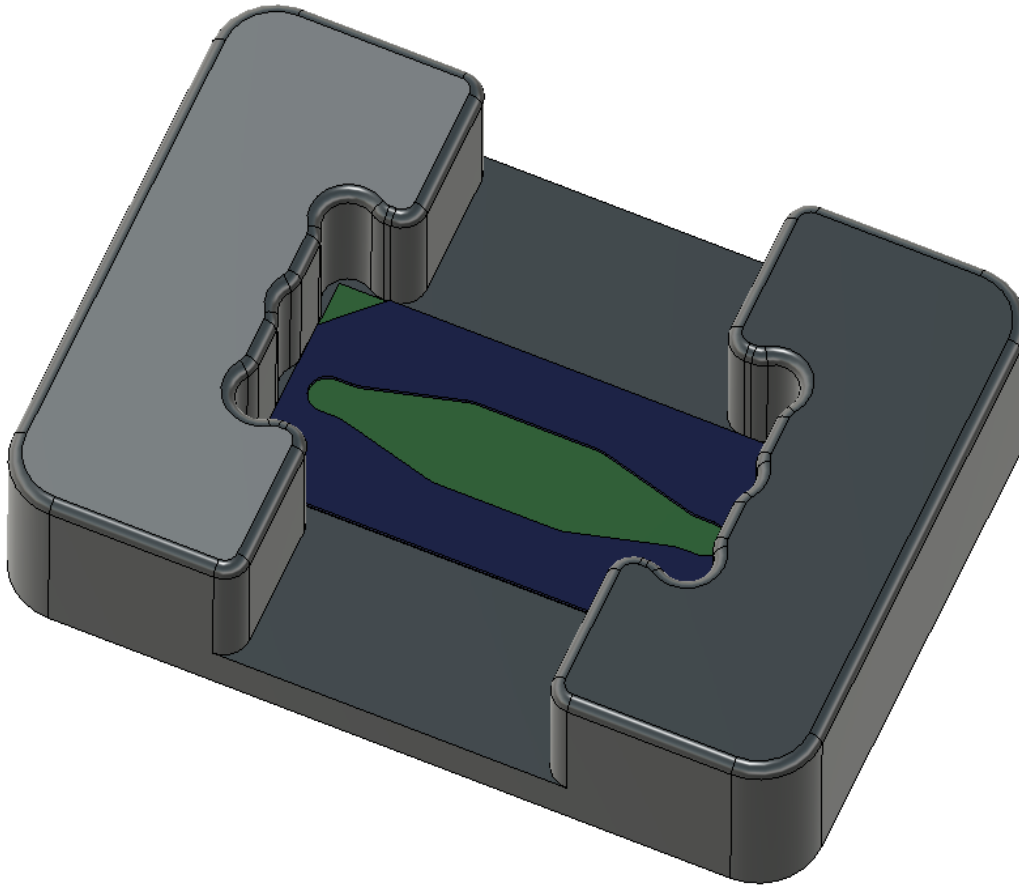


- **Remove FA2 from FA1**
- **Remove component 1 from FA1**
- **Inspect PSA for burnishing/wet out**

Step B1

- **Start with Fixture B1 (FB1)**

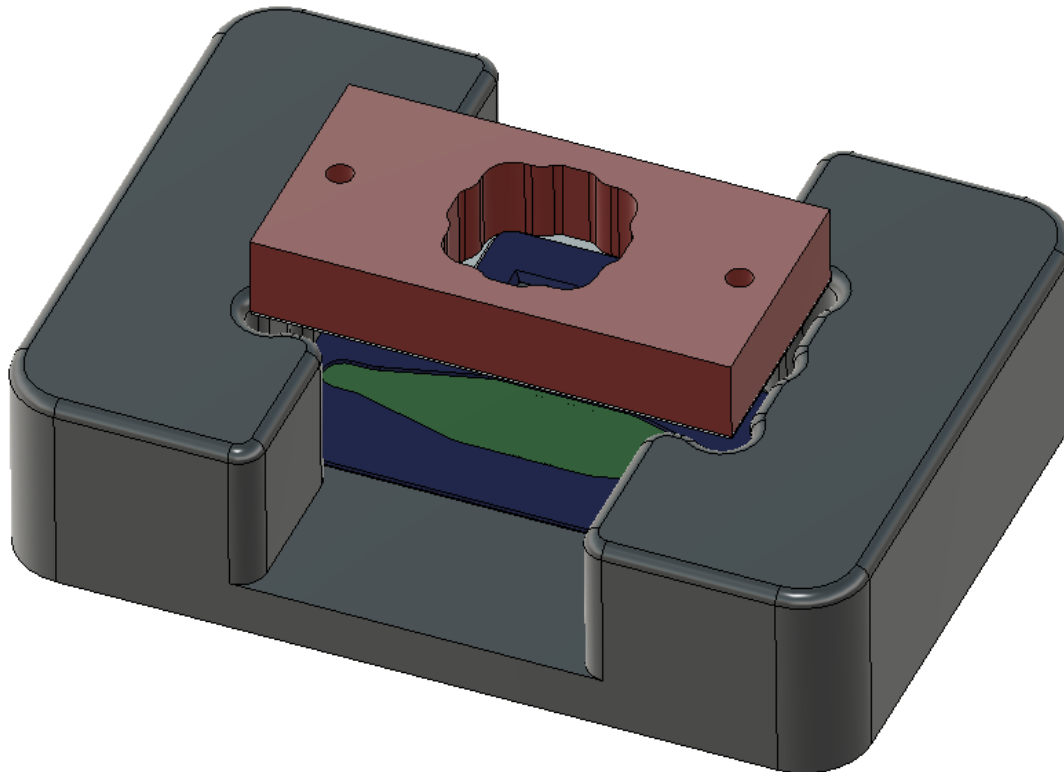




Step B2

- **Sheet format (more common):**
 - Remove component 2 from sheet
 - Remove the blue release liner (one side only, this is channel up)
- **Single format (less common):**
 - Remove thin blue protective layer from bottom side
 - Remove thick blue release liner from opposite side (this is channel up)
- **If release liner looks burned, wipe with EtOH prior to removing. If it crumbles onto the component, wipe off with EtOH**
- **Place component 2 into FB1**
- **Ensure exposed PSA, channel side is up (away from fixture)**

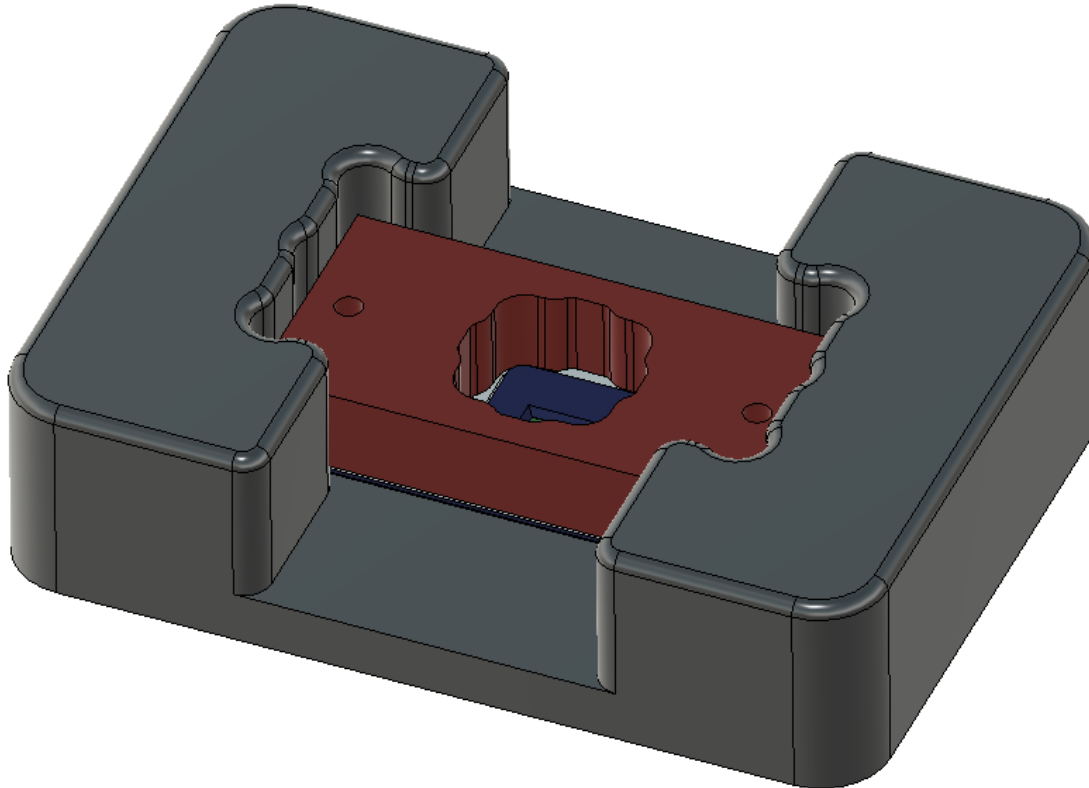
Step B3



- **Prepare to place component 1 into FB1**
- **Ensure the acrylic cutout is facing up**

Step B4

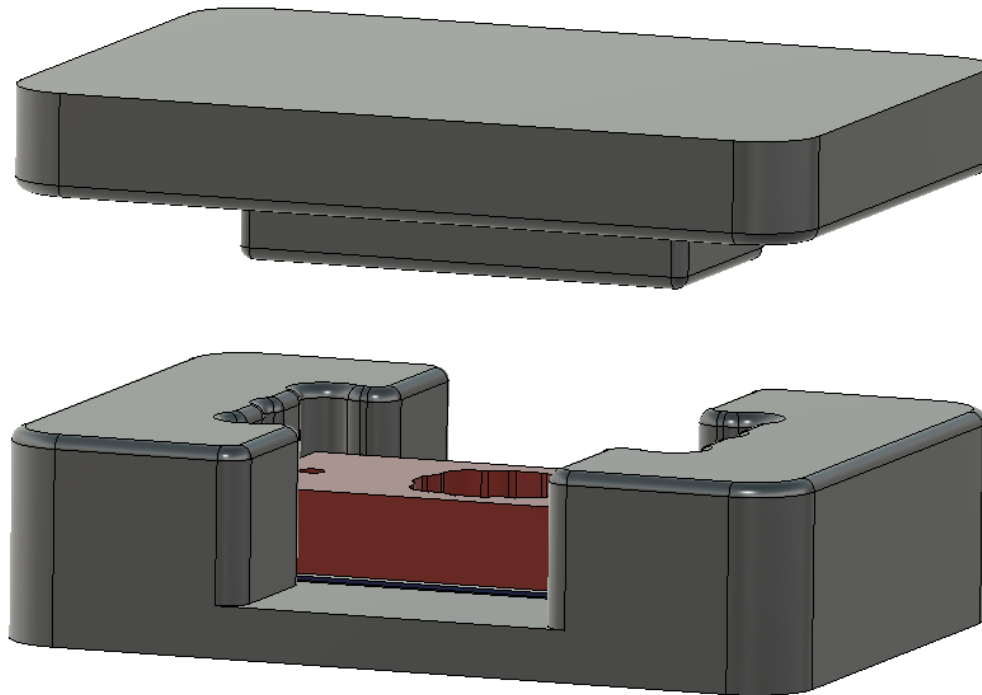
- **Press component 1 down onto component 2**





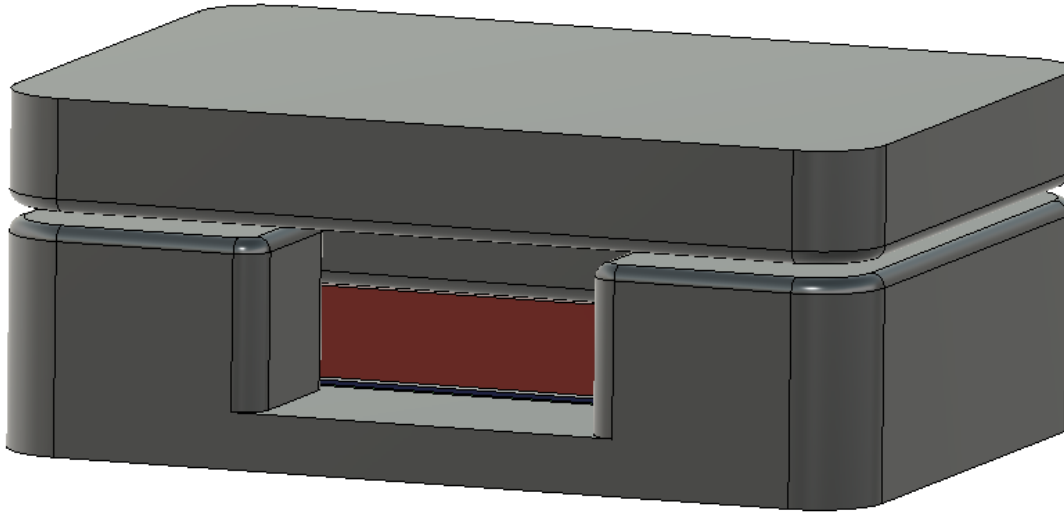
Step B5

- **Prepare to insert Fixture B2 (FB2) into FB1**

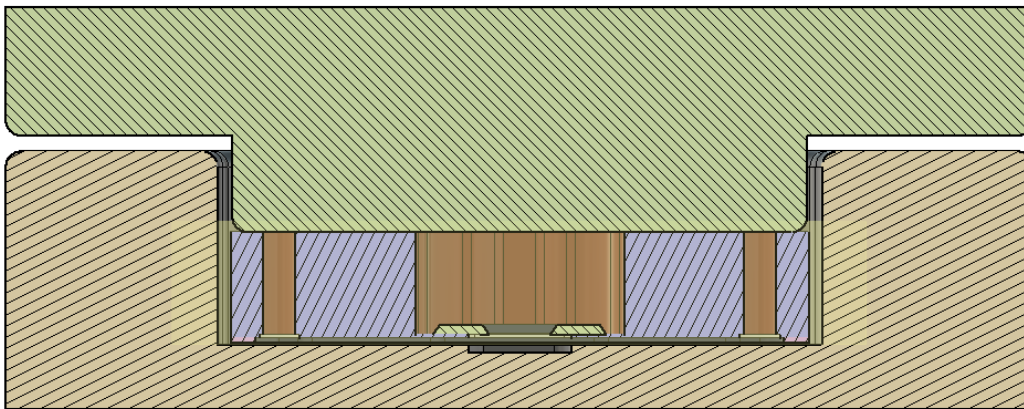




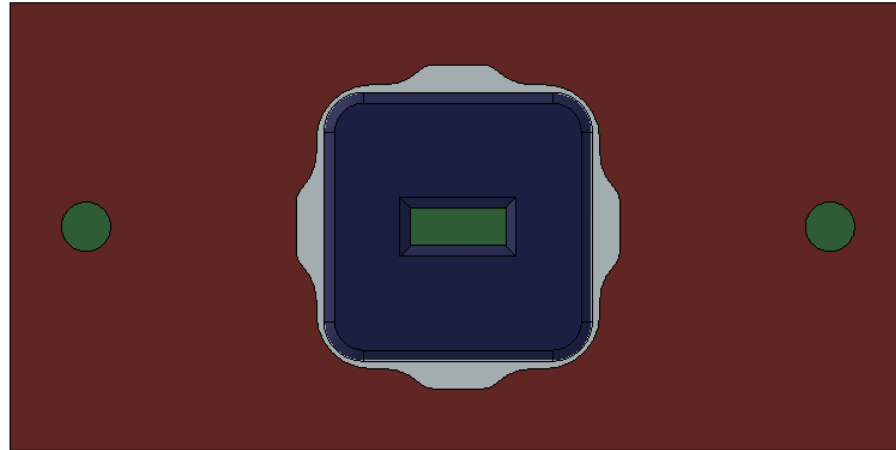
Step B6



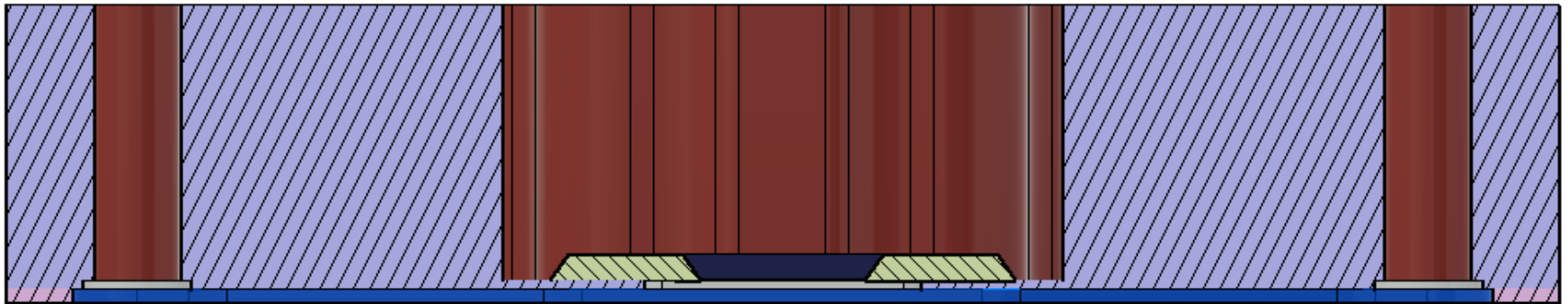
- Press FB2 into FB1
- Apply firm pressure
- Apply pressure onto different corners of FB2 to roll the contact point around



Step C1

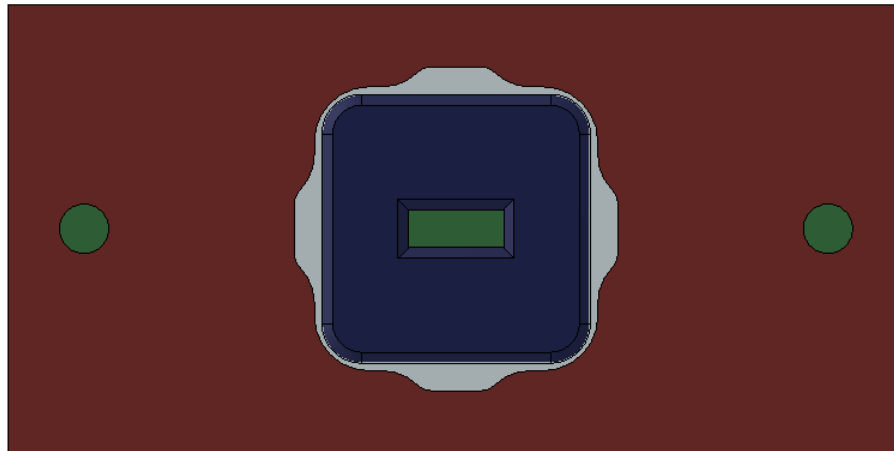


- Remove FB2 from FB1
- Remove the finished part from FB1
- Inspect PSA for burnishing/wet out
- Push out air bubbles around channel if necessary





Working Dimensions



- **Surface Area of Top Well: 37 mm²**
- **Volume of Top Well: 100 µl (can hold up to 115 µl)**
- **Surface Area of Bottom Channel: 44.4 mm²**
- **Volume of Bottom Channel: 6.77 µl**
- **Volume of Bottom Channel including Access Ports: 9.98 µl (pipetting 20 µl is easier to fully flush channel)**

