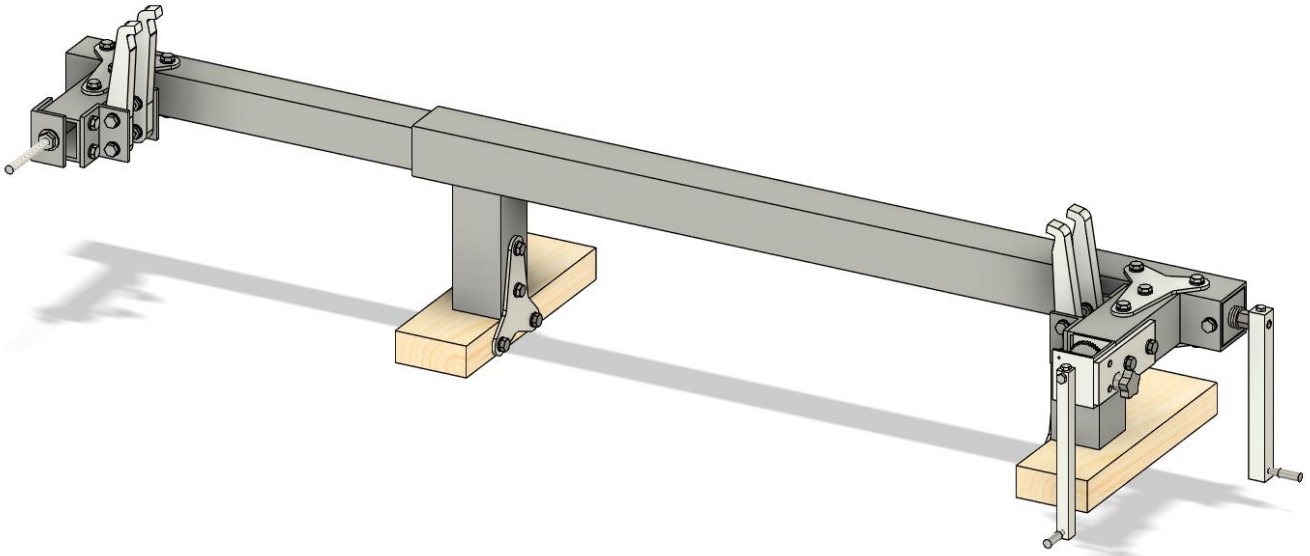


# Build Guide



Some notes before starting:

- This build is designed to be made using hand tools so it doesn't require any particularly tight tolerances, if everything is within  $\pm 1\text{mm}$  there shouldn't be any major issues. A couple of areas require slightly finer tolerance than this to make sure things fit together, and these are called out specifically.
- There is quite a lot of drilling and tapping to do in this project. Investing in some decent quality drill bits and cutting fluid will make life a lot easier. I built this using a cordless drill – access to a bench drill isn't a requirement but will make the build a bit easier.
- If you pick and choose your supplier, you shouldn't need to cut any big pieces of steel to size yourself as most steel suppliers offer a free or cheap cutting service. The only exception to this were the steel c-channel sections in the leadscrew assembly which are a bit too short for most shops to cut, but these are thin enough that a hacksaw does the job.
- If you have any questions or issues that can't be resolved using the CAD model then please don't hesitate to contact me or raise a Github issue.

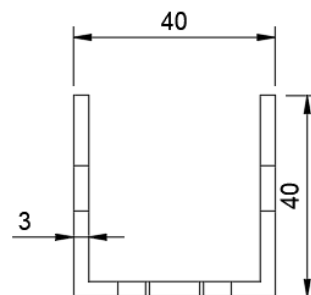
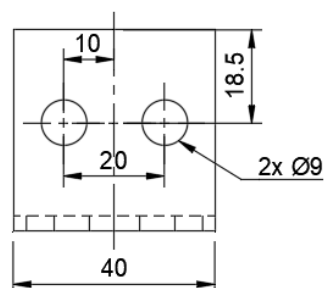
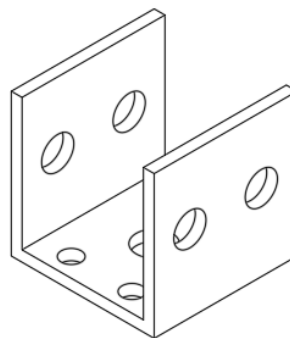
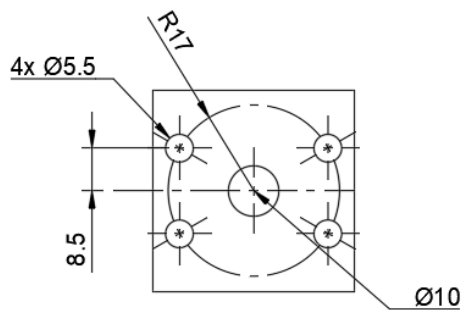
# 1: Leadscrew Assembly



## 1.1: Required:

- 40x40x3x40mm steel channel

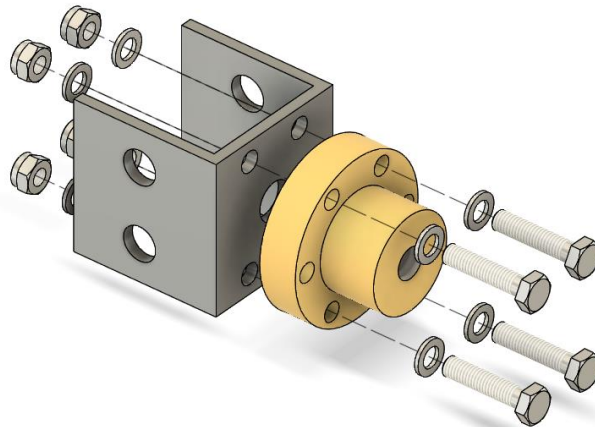
Create the moving leadscrew bracket using 40x40 c-channel.



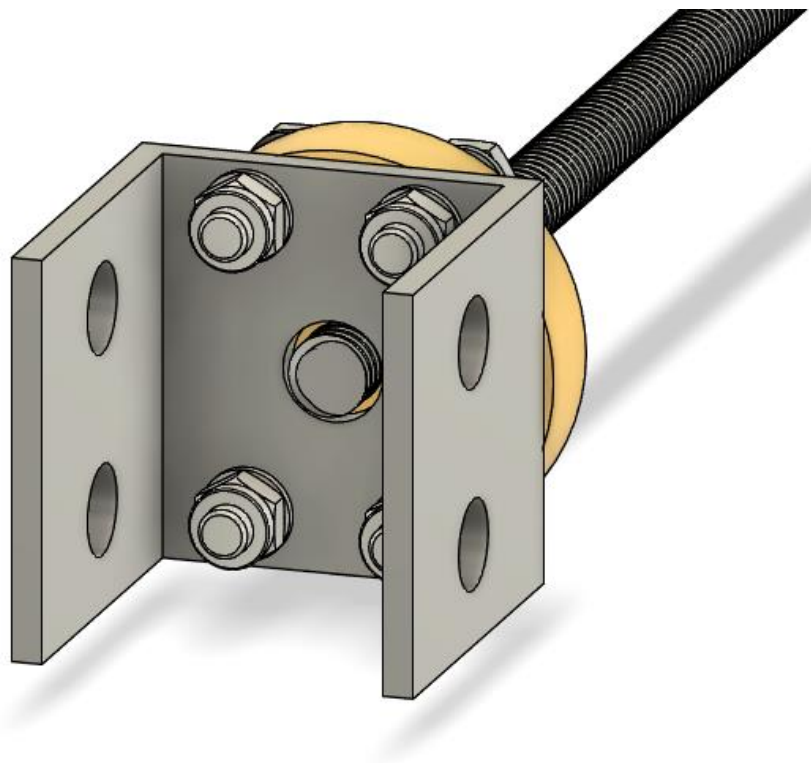
## 1.2: Required:

- 4x M5 x 22 hex bolt
- 4x M5 nylock nut
- 8x M5 9mm reduced diameter washer

Assemble the parts as shown. The locking nuts should not be fully tightened to allow the mechanism to compensate for misalignment.



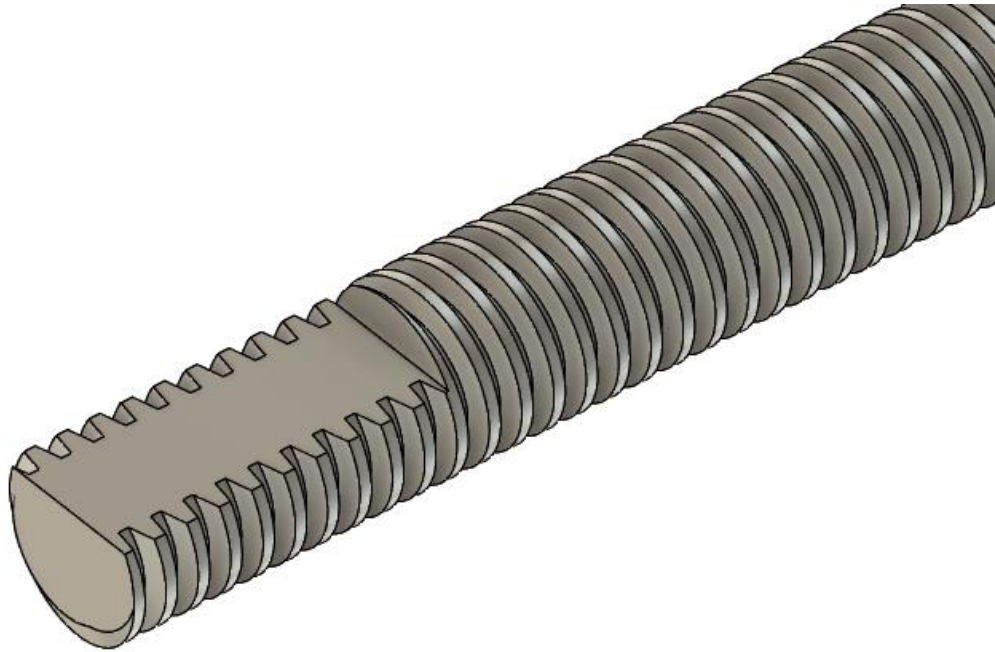
Ensure there is sufficient clearance where the leadscrew passes through the bracket.



### 1.3: Required:

- TR10x2 1000mm leadscrew

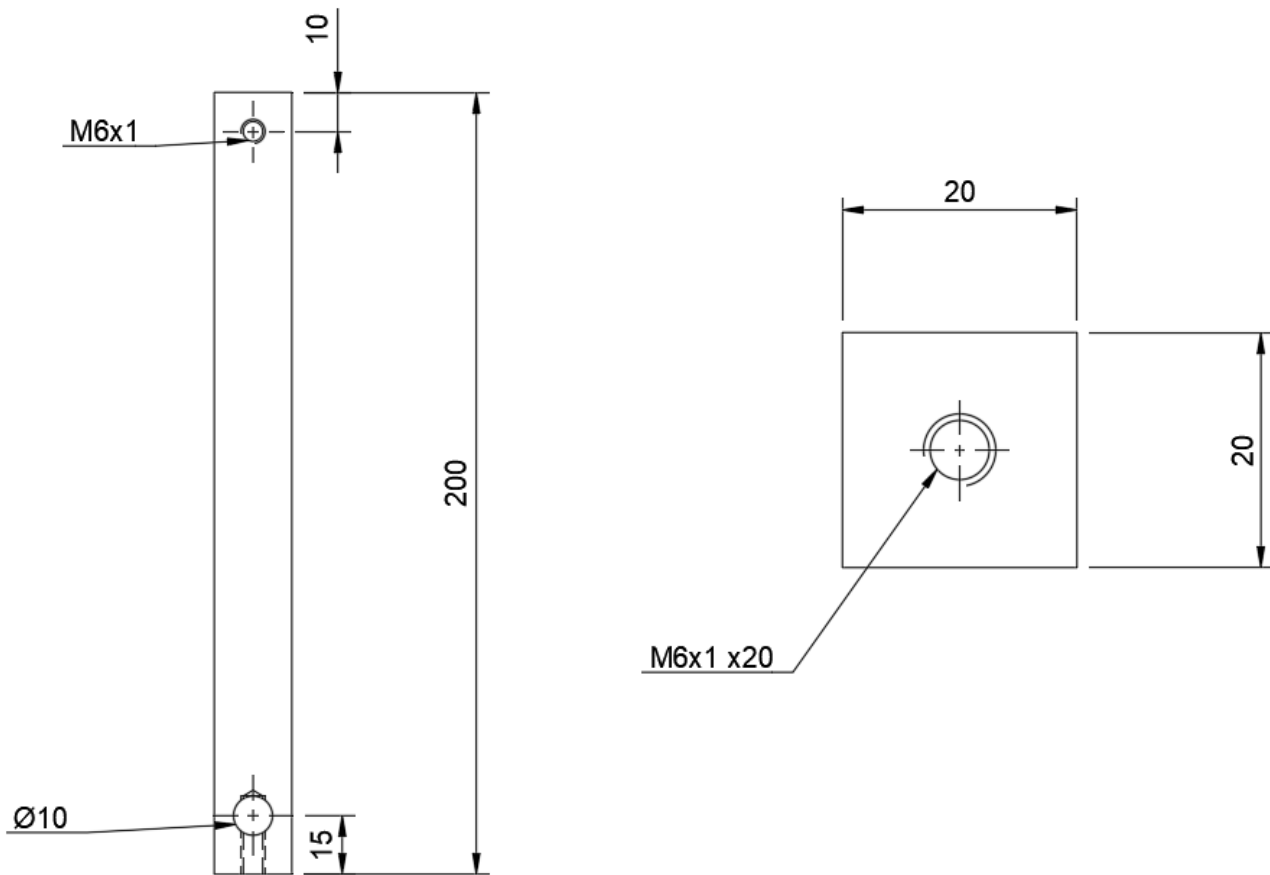
Prepare the leadscrew by filing a flat on one end. It should extend around 15mm from the end of the screw, and be just deep enough that the threads are not visible in the flat section. Apply some oil to the length of the leadscrew to prevent rust.



#### 1.4: Required:

- 20x20x200mm aluminium square bar

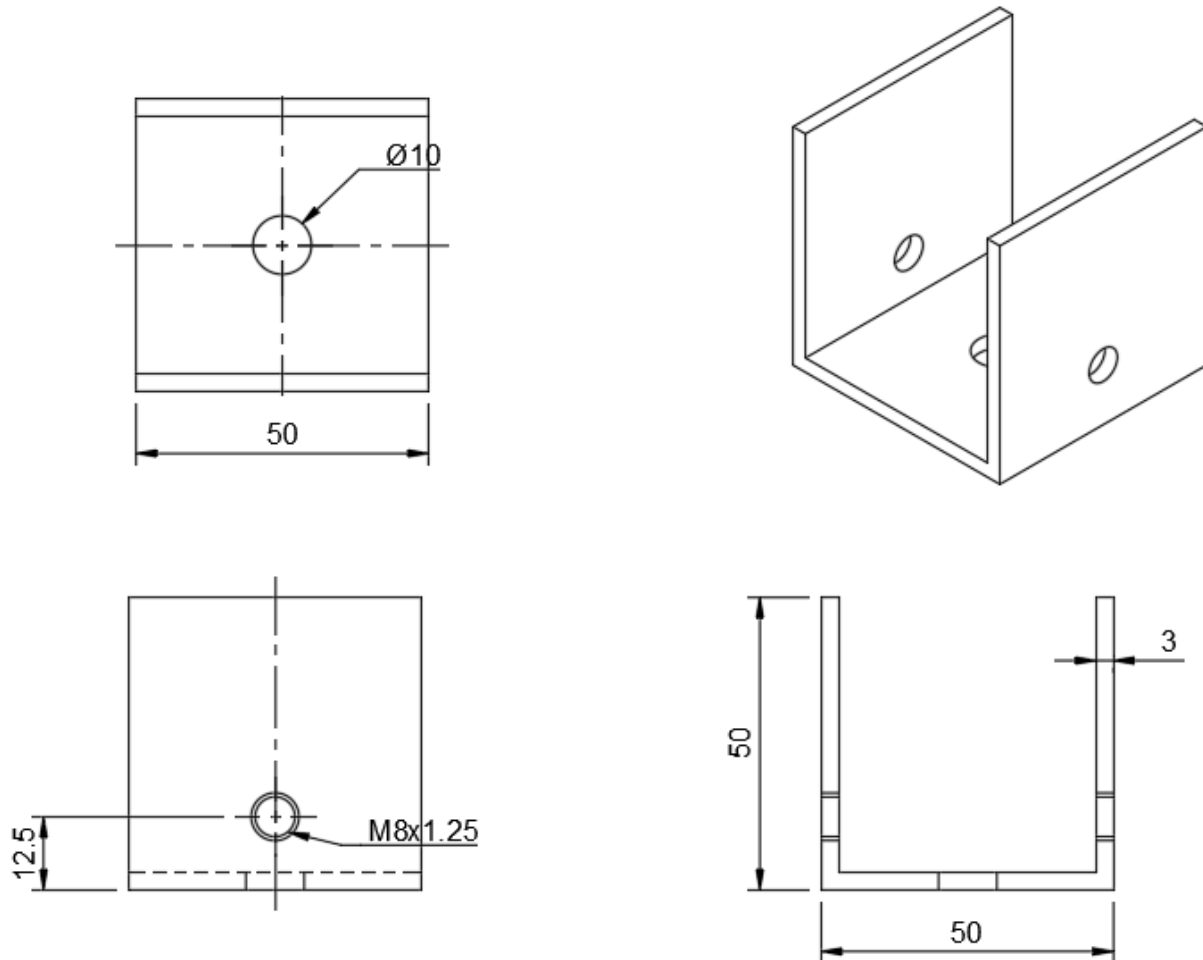
Create the handle of the press. If using a 3D printed rotating handle, an additional M6 hole is required on the top. The depth of the threaded holes on the end is not critical so long as they intersect with the holes on the long face.



1.5: Required:

- 50x50x3x50mm steel channel

Create the static leadscrew bracket using the steel channel. Ensure the 10mm hole has sufficient clearance for the leadscrew.



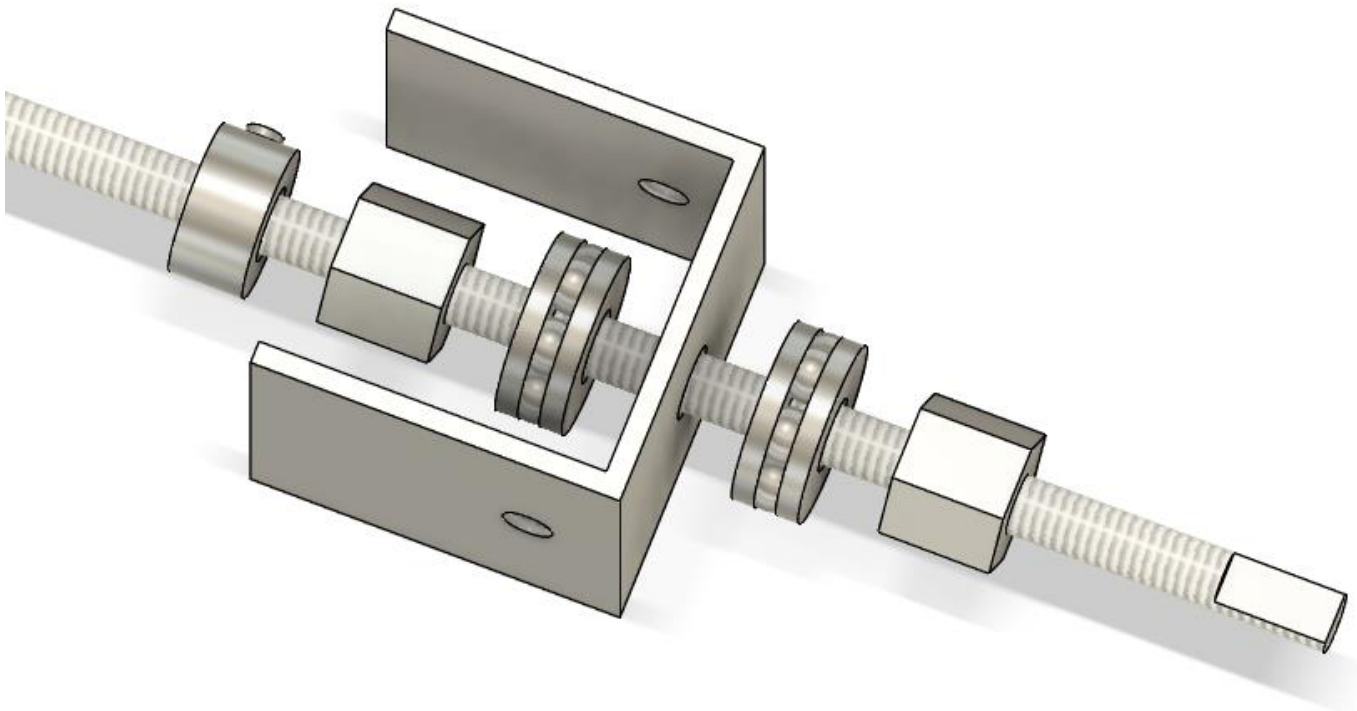
### 1.6: Required:

- 10mm adjusting ring
- 2x TR10x2 hex leadscrew nut
- 2x 51100 thrust bearing
- Static leadscrew bracket from 1.5
- Leadscrew

Add all of the parts to the leadscrew in the following order:

1. 10mm adjusting ring
2. TR10 hex nut
3. 51100 thrust bearing
4. Static leadscrew bracket
5. 51100 thrust bearing
6. TR10 hex nut

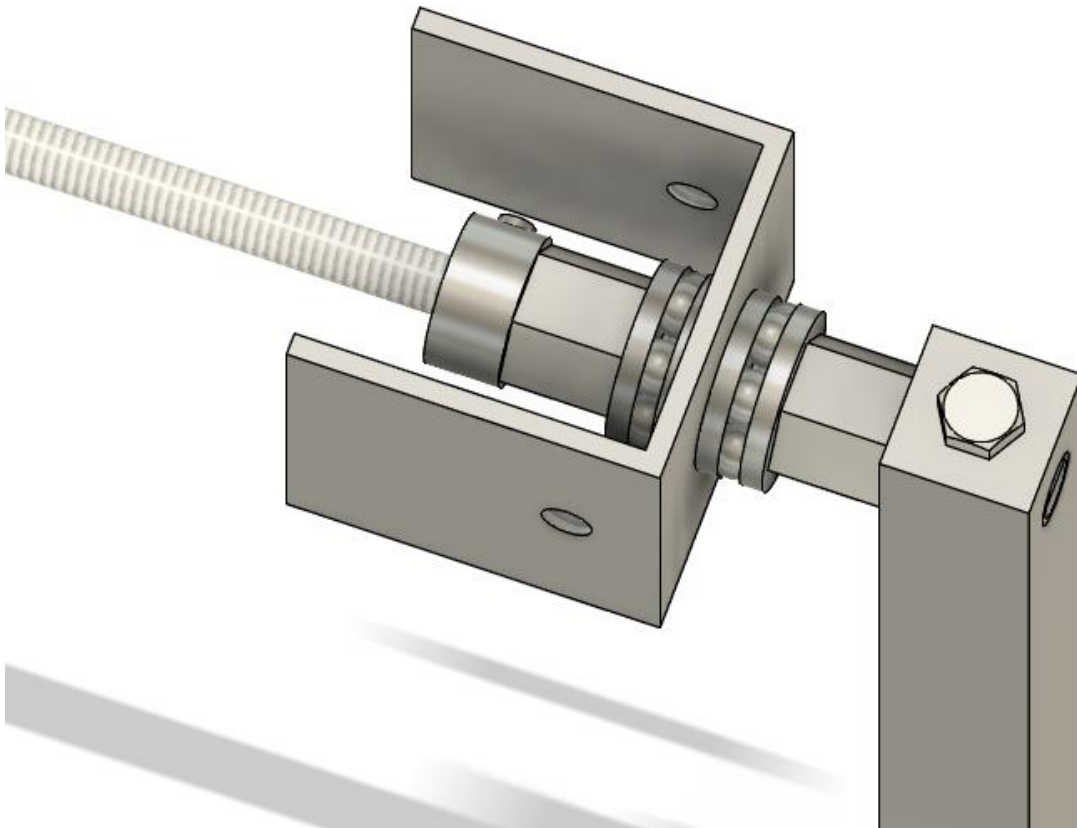
Do not tighten down the adjusting ring yet.



### 1.7: Required:

- Bow press handle
- M6x22 hex bolt

Attach the handle flush with the end of the leadscrew using the M6 bolt, then move the parts from 1.6 up towards the handle. The bracket should be sandwiched between the two thrust bearings just tightly enough that it cannot rattle. Tighten down the adjusting ring once everything is in place.

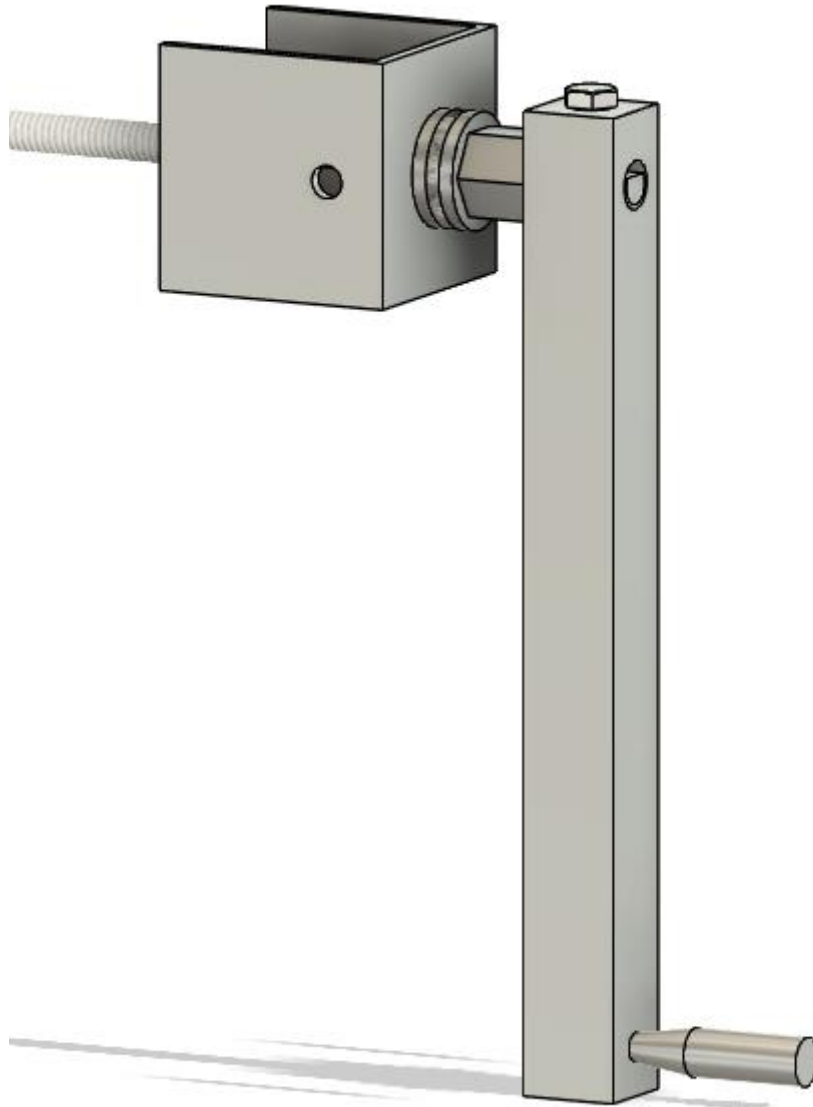




### 1.8: Required:

- M6 rotating handle

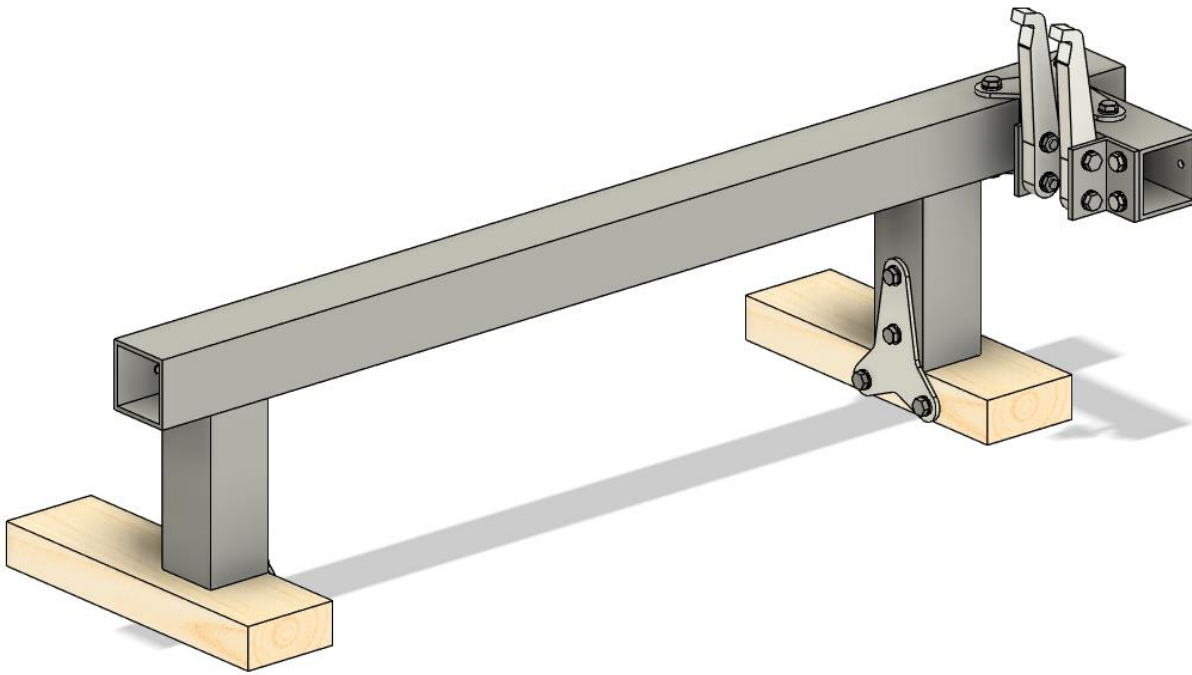
Attach the free-spinning grip to the end of the handle. If 3D printing the handle instead, lock the bolt in place using the threaded hole you made in the other end.



The leadscrew assembly is now completed.



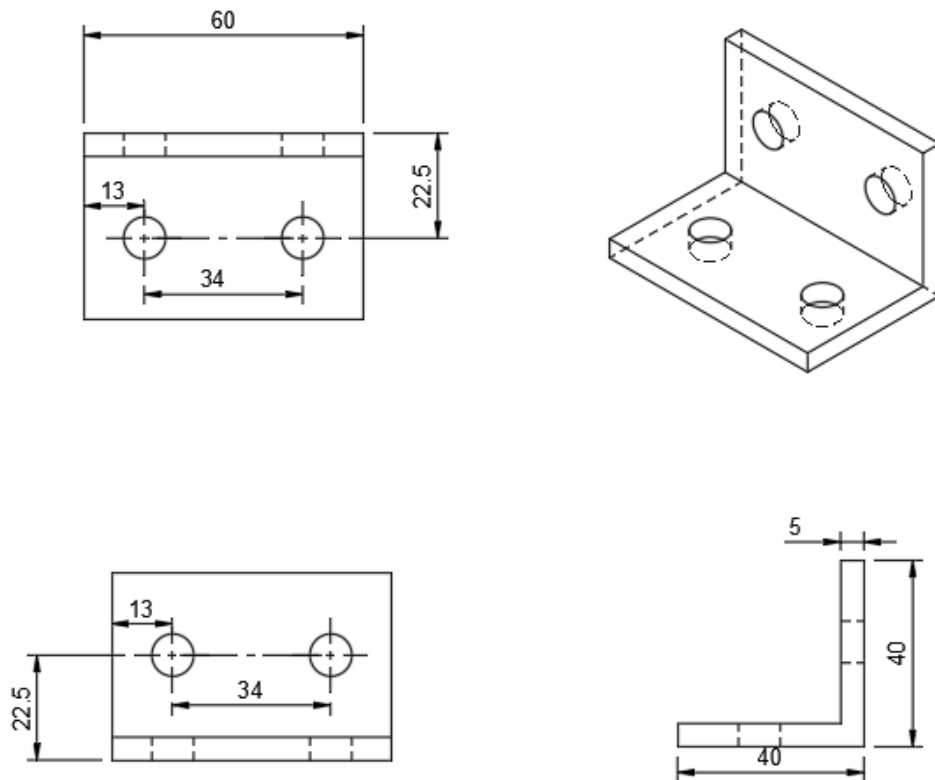
## 2: Main Mody Assembly



### 2.1: Required:

- 4x 40x40x5x60mm steel equal angle

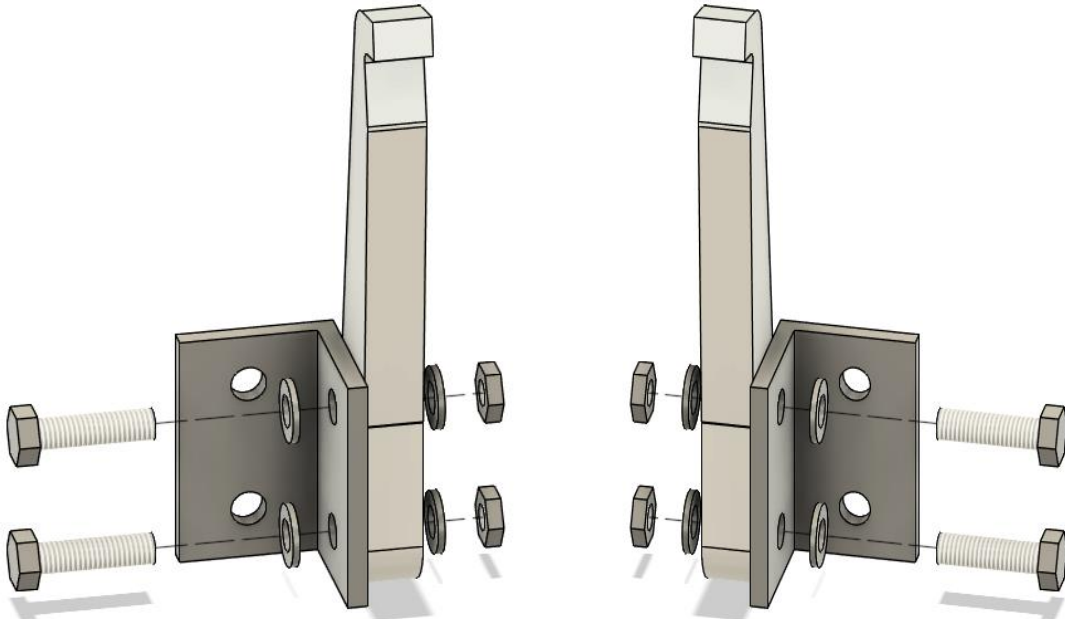
Create four finger mount brackets according to the drawing. Both sides of the bracket are symmetrical.



## 2.2: Required:

- 4x Finger mount brackets from 2.1
- 4x Fingers
- 8x M8x30 hex bolts
- 8x M8 thin nuts
- 16x M8 washers

Create four finger assemblies. These are symmetrical – create two left variants and two right variants. Exact alignment of the fingers is not critical right now, this will be adjusted later.

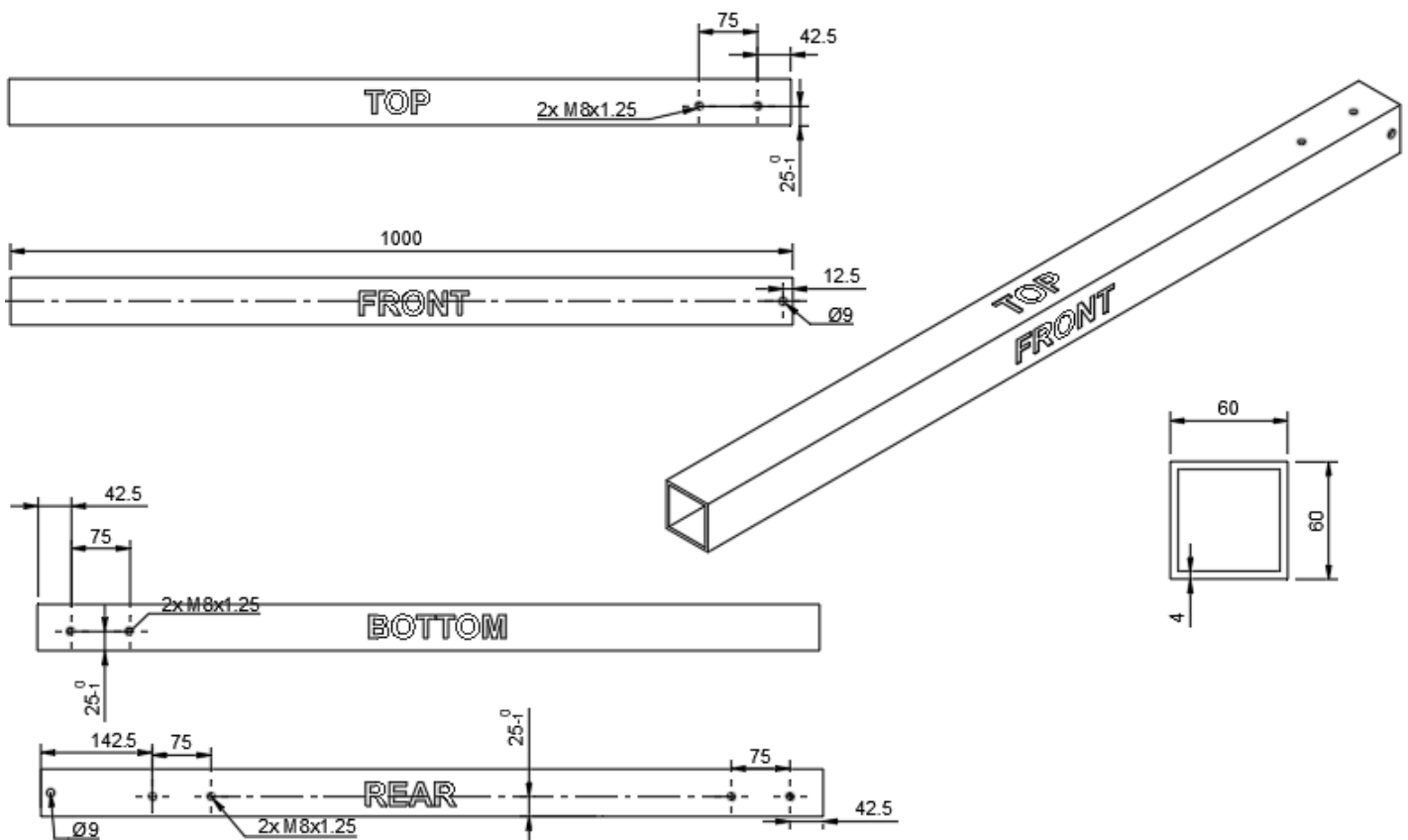


### 2.3: Required:

- 60x60x4x1000mm square box section steel

Create the main body of the press. I recommend labelling the top, front, rear and bottom faces of the workpiece first to match the drawings. Note that the hole centreline in the top is 25mm from the front and the line on the rear is 25mm from the bottom. The centreline on the front is in the centre (~30mm from each side). Also note the tolerances on the 25mm dimensions – do not place the holes more than 25mm from the edge, or additional work will be required during assembly

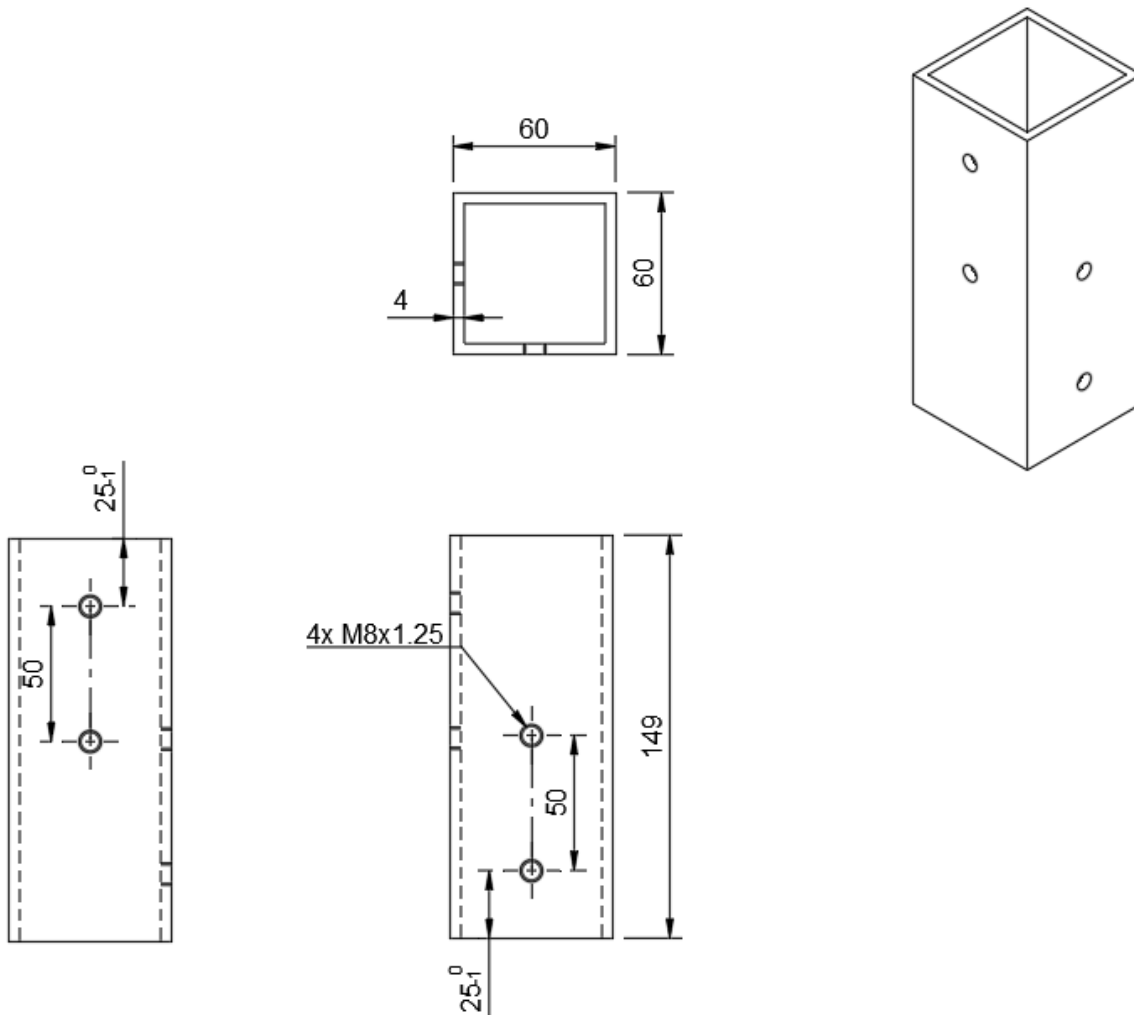
All holes are M8 tapped, except for the 9mm hole through the front and rear faces. Once all hole locations are marked, double check against the drawings and CAD before drilling and tapping any. This is probably the most complex and awkward component in the whole build.



## 2.4: Required:

- 2x 60x60x4x149 square box section steel

Create a pair of these which are mirror images. Note the tolerance on the 25mm dimensions.  
All four holes are M8 tapped.



## 2.5: Required:

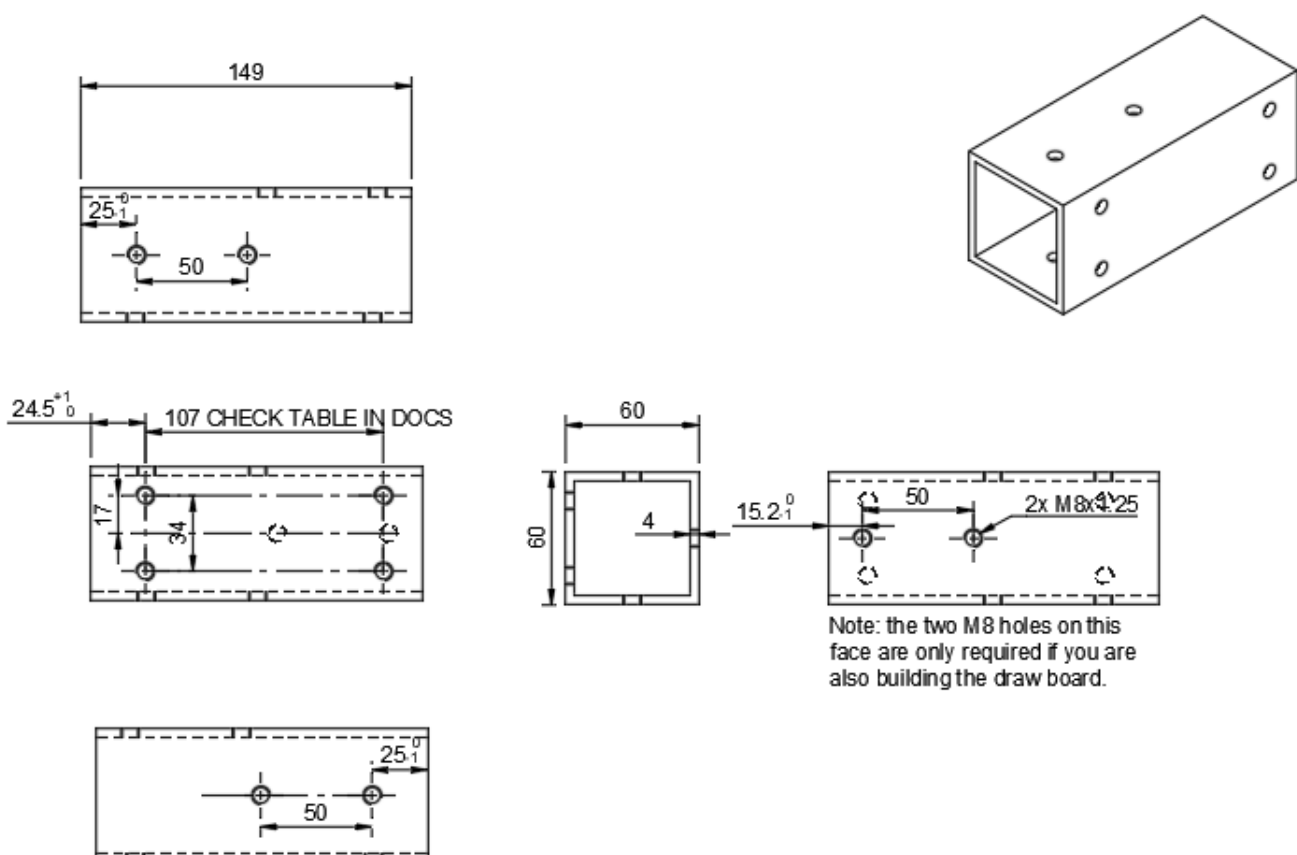
- 60x60x4x149 square box section steel

Create the mount for attaching the fingers. Note the tolerances on some of the dimensions.

**The distance between the two pairs of holes must be selected to match the gap between your split limbs.** The default 107mm value corresponds to PSE Dominator Duo 30mm gap limbs.

Distance between inside limb edges (mm)	Distance value in drawing (mm)
20	97
25	102
30 (PSE Dominator Duo)	107

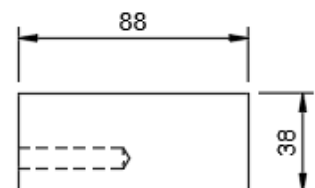
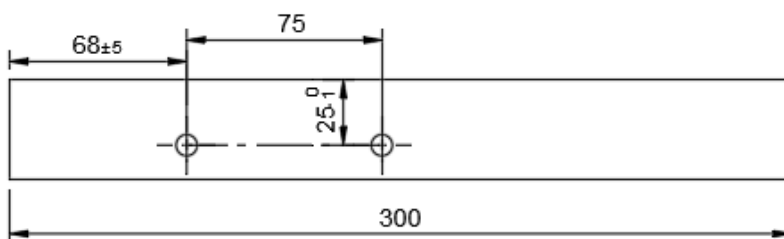
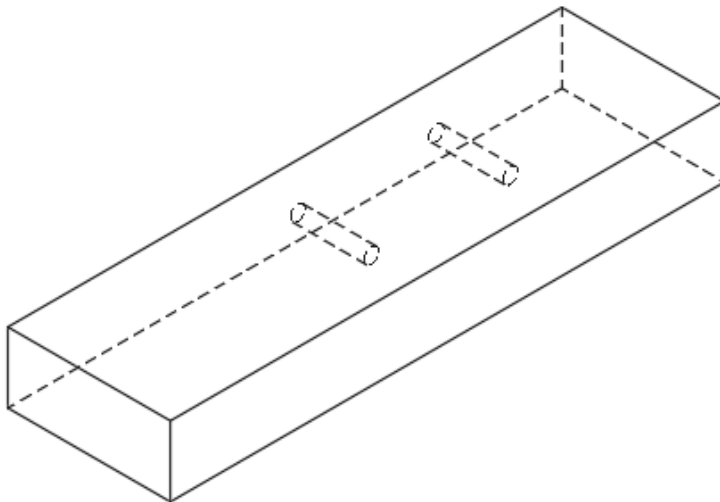
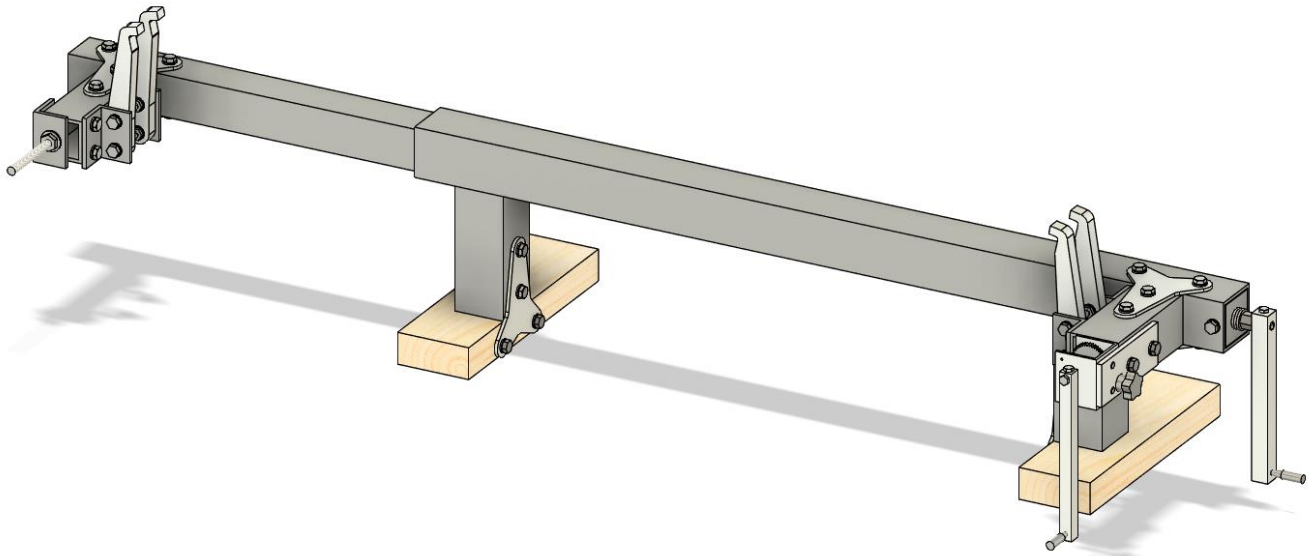
Once the holes are marked, double check against the CAD before drilling. All holes are M8 tapped.



## 2.6: Required:

- 2x 2x4" 300mm timber

Drill the pilot holes according to the drawing. Check the required pilot hole diameter and depth for the specific screws you are using. Make two mirrored versions of this.



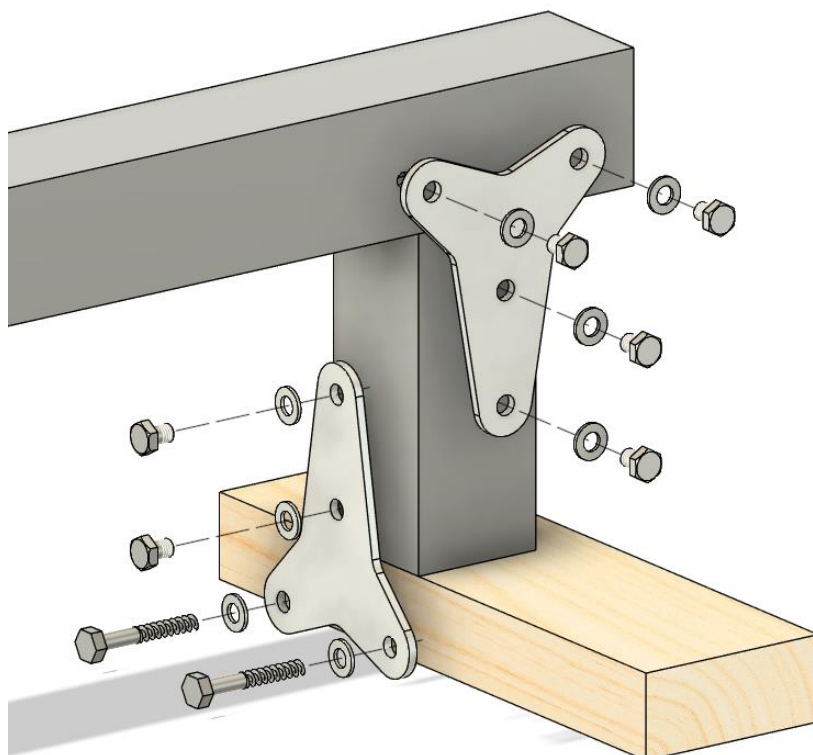
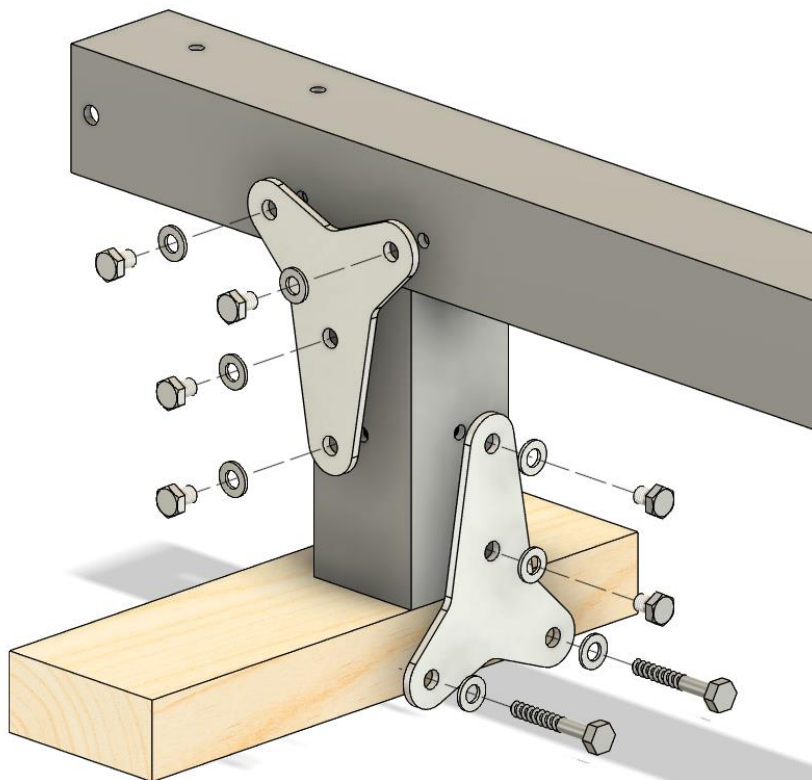




## 2.7: Required:

- 14x M8x10 hex bolts
- 4x M8x50 coach screws
- 20x M8 washers
- 4x T-brackets

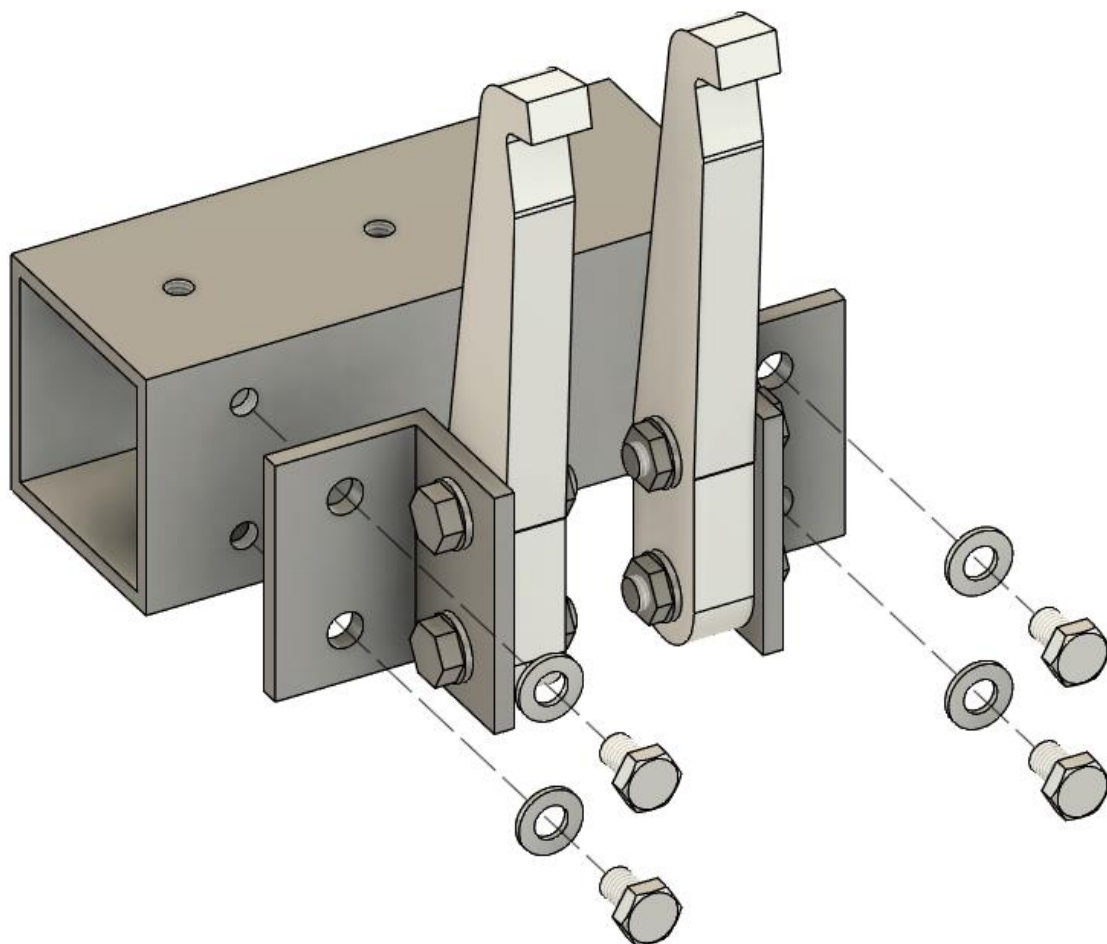
Assemble the base according to the diagrams.



## 2.8: Required:

- 4x M8x12 hex bolt
- 4x M8 washers

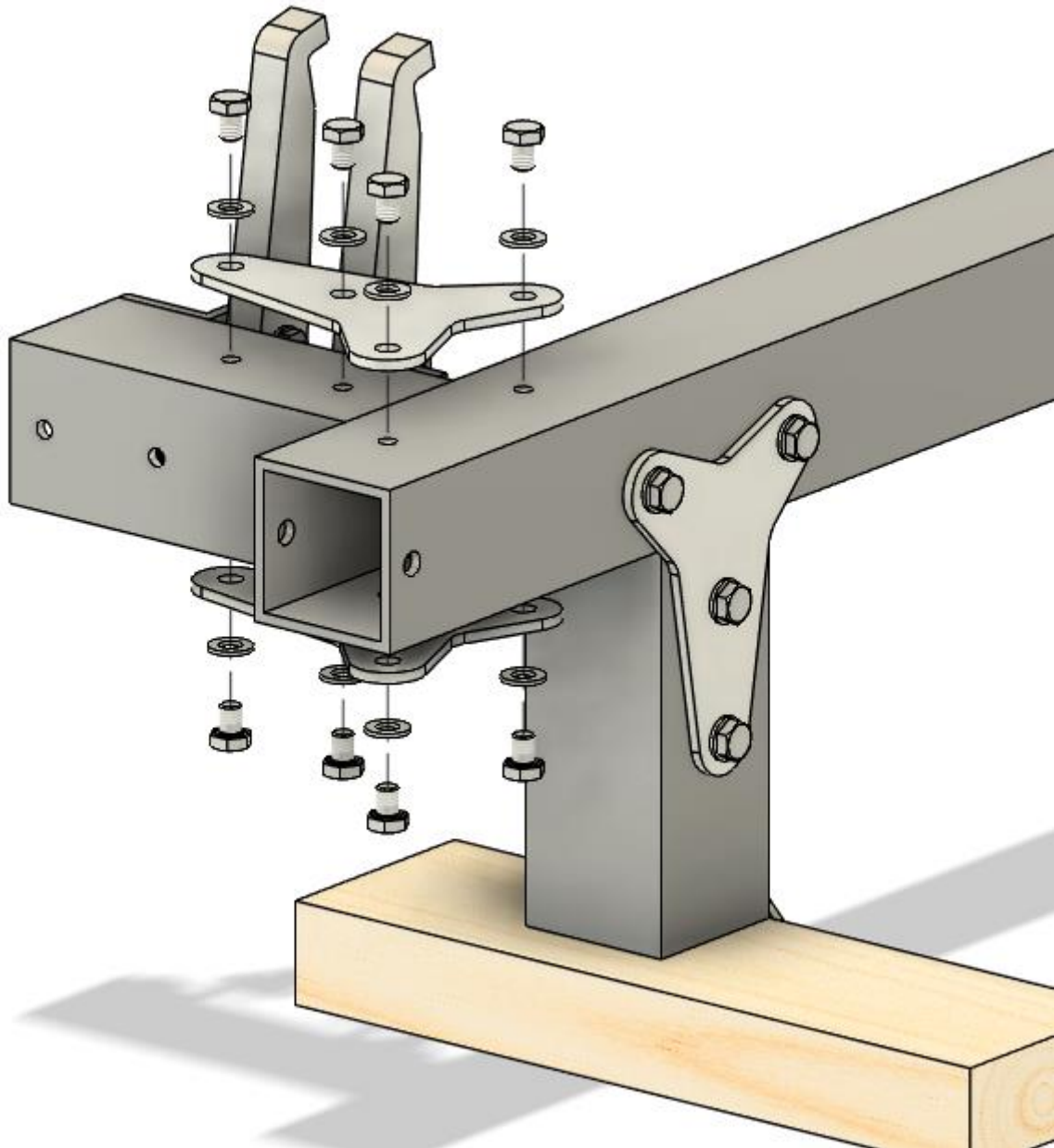
Attach the fingers to the mount using M8x12 bolts. After, loosen the M8x30 bolts slightly and ensure the fingers are aligned before retightening.



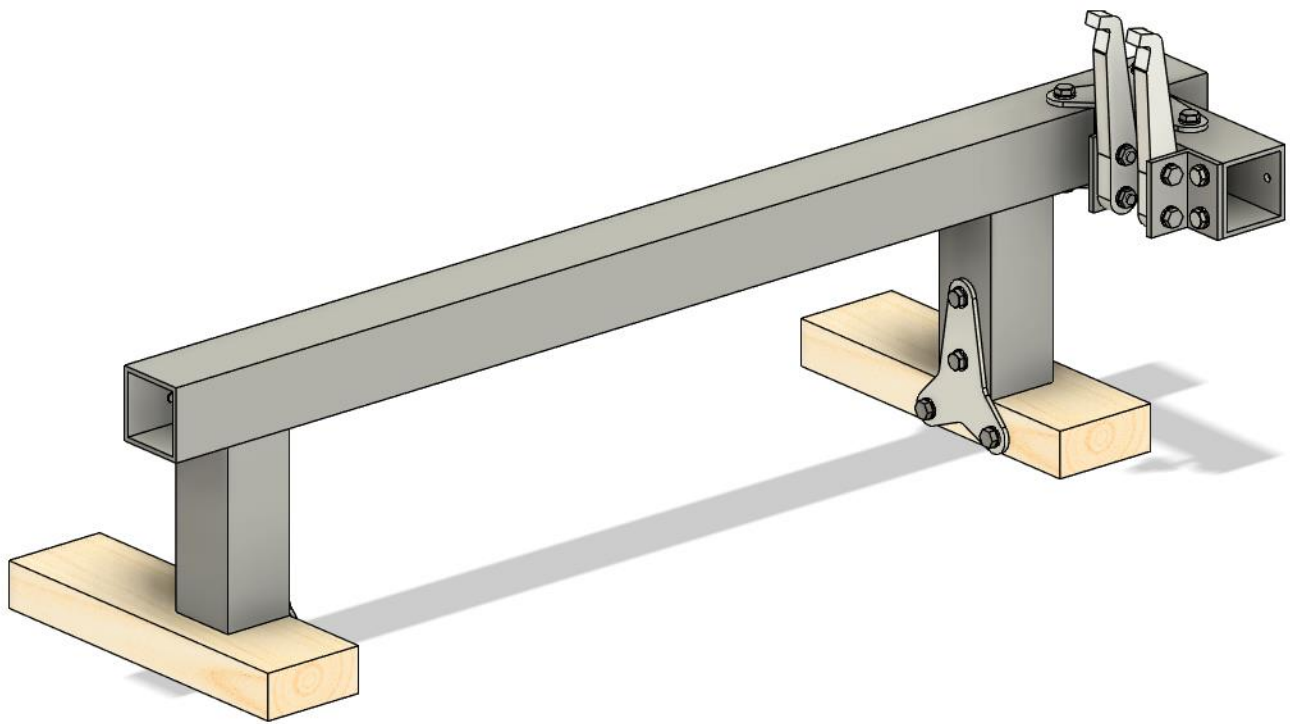
## 2.9: Required:

- 8x M8x10 hex bolts
- 8x M8 washers
- 2x T-brackets

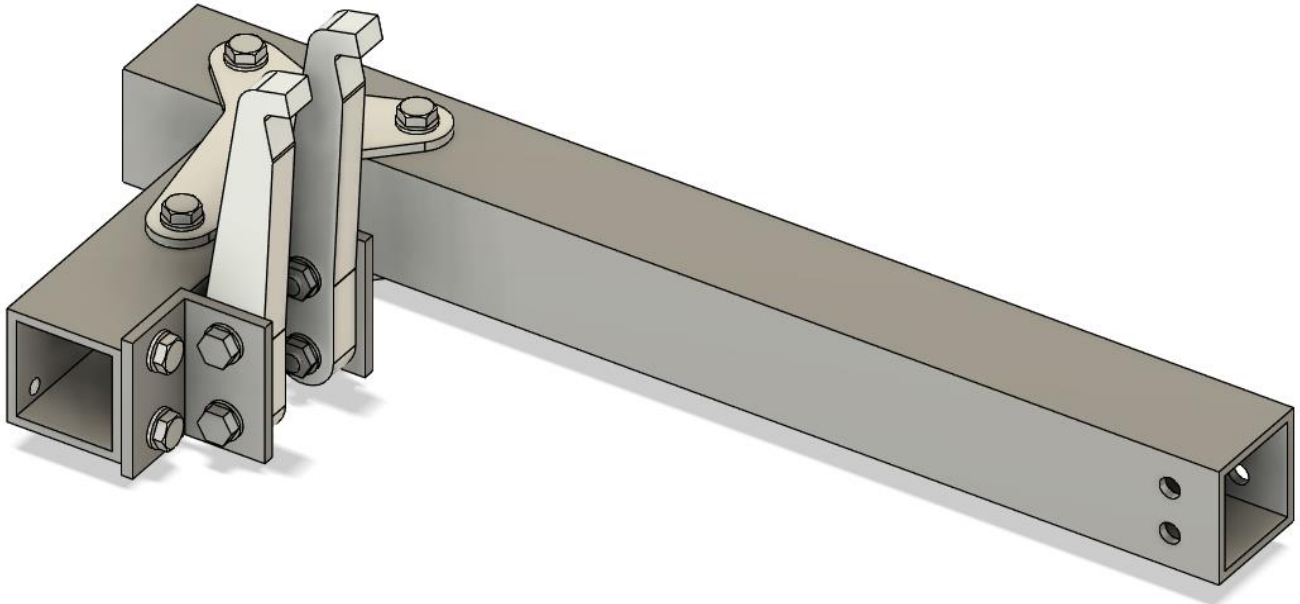
Attach the finger assembly to the base using M8x10 bolts.



The main body assembly should is now completed.



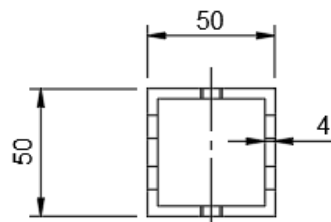
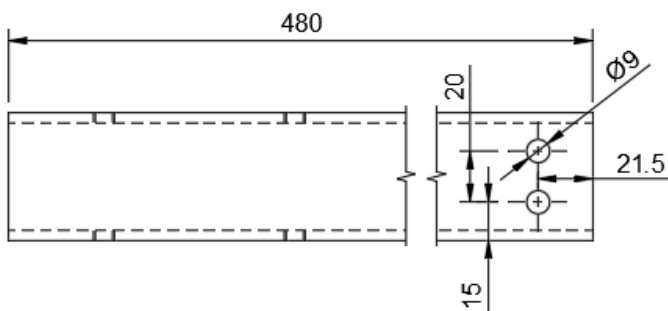
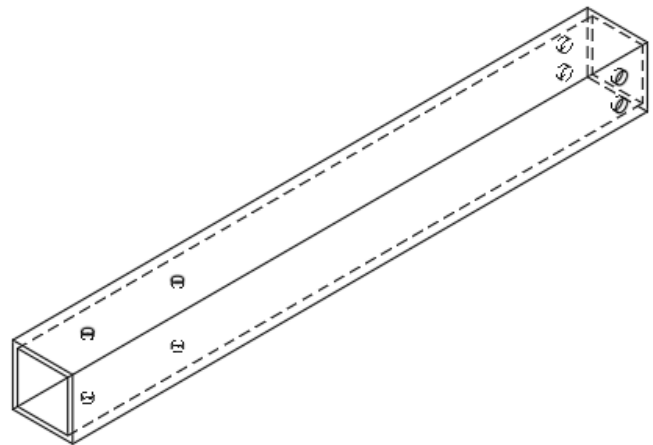
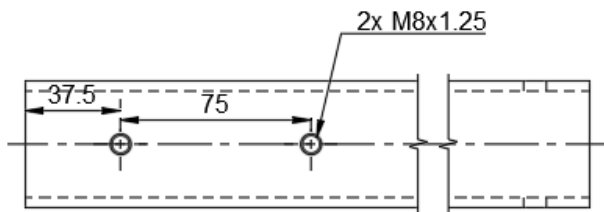
### 3: Moving Body Section



#### 3.1: Required:

- 50x50x4x480mm square box section steel

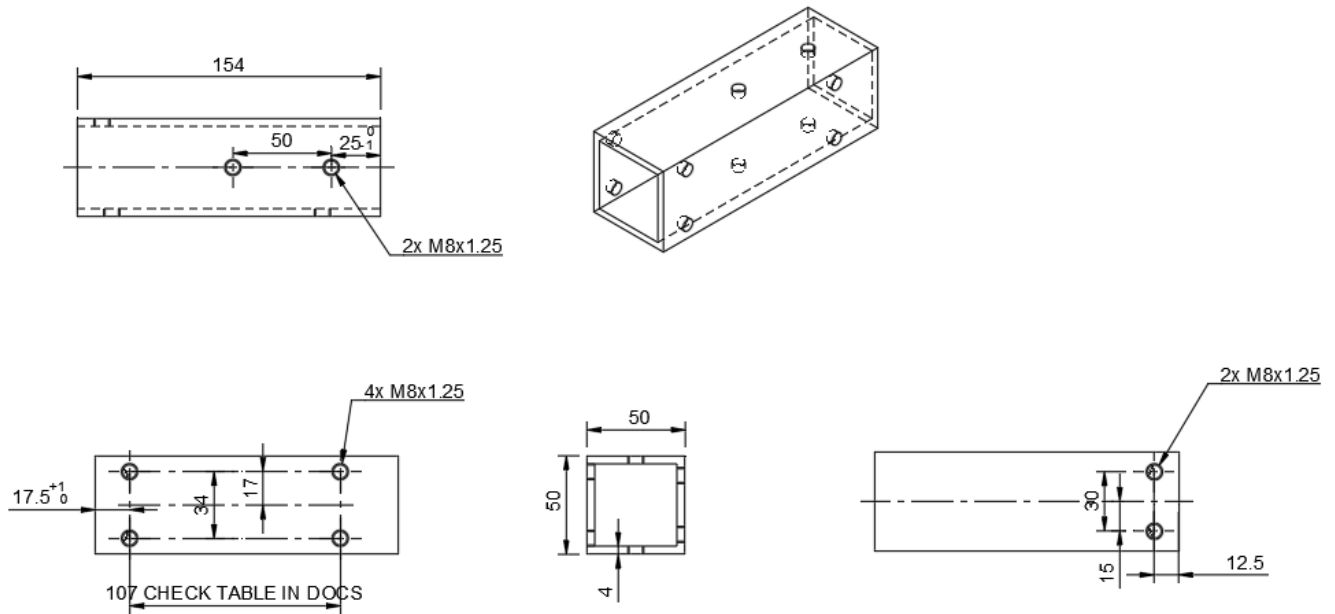
This part should be much simpler to make than the long section in the main body. As always, double check the marking out before drilling the holes.



### 3.2: Required:

- 50x50x4x154mm square box section steel

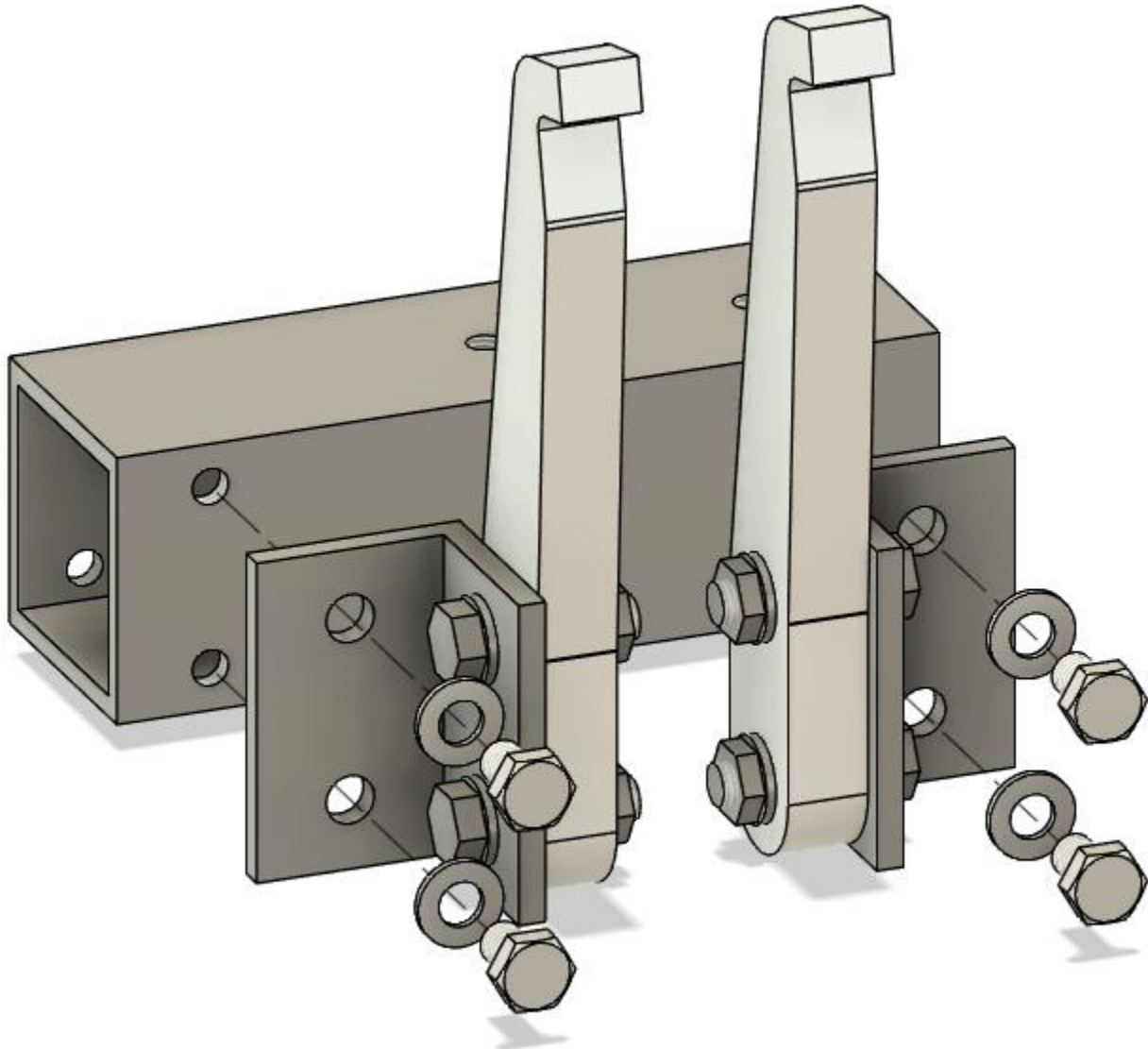
Take note of the tolerances on some of the dimensions. For the front face with four threaded holes, refer to the limb spacing table from earlier.



### 3.3: Required:

- 4x M8x12 hex bolts
- 4x M8 washers

Attach the fingers to the mount from the previous step. Afterwards, loosen the M8x30 bolts to even out the fingers.

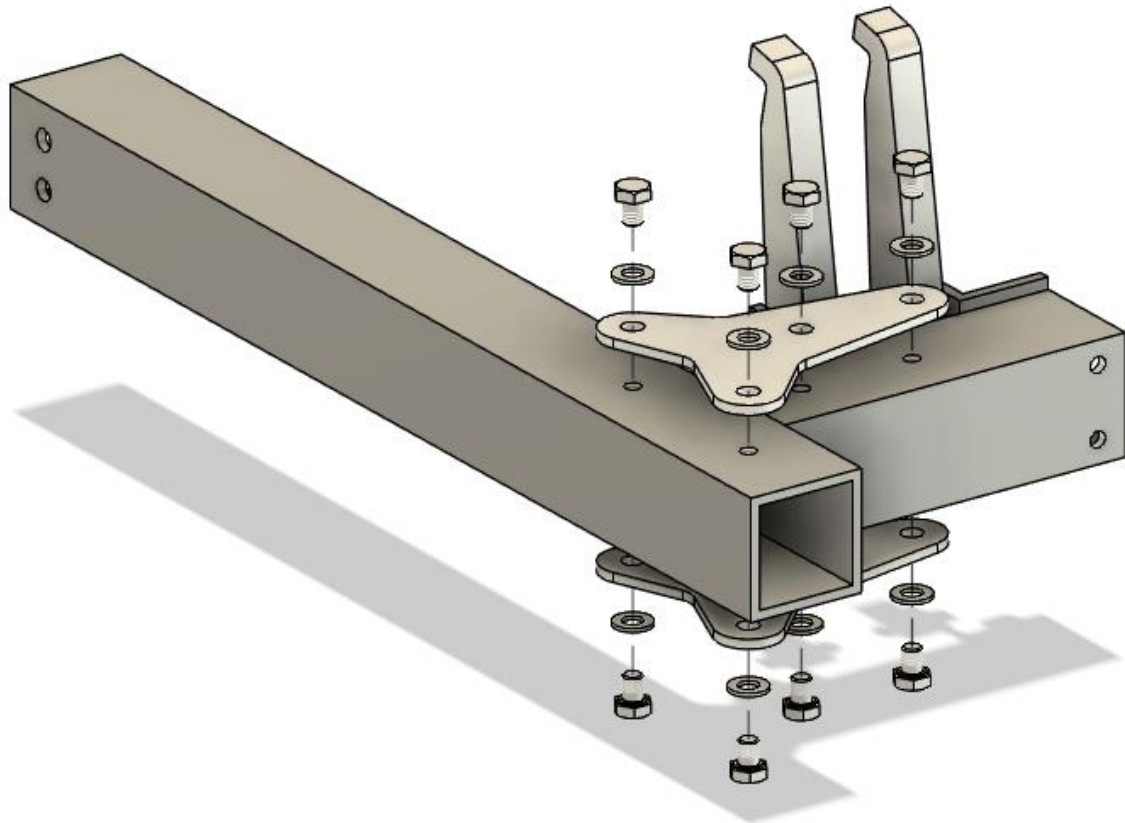




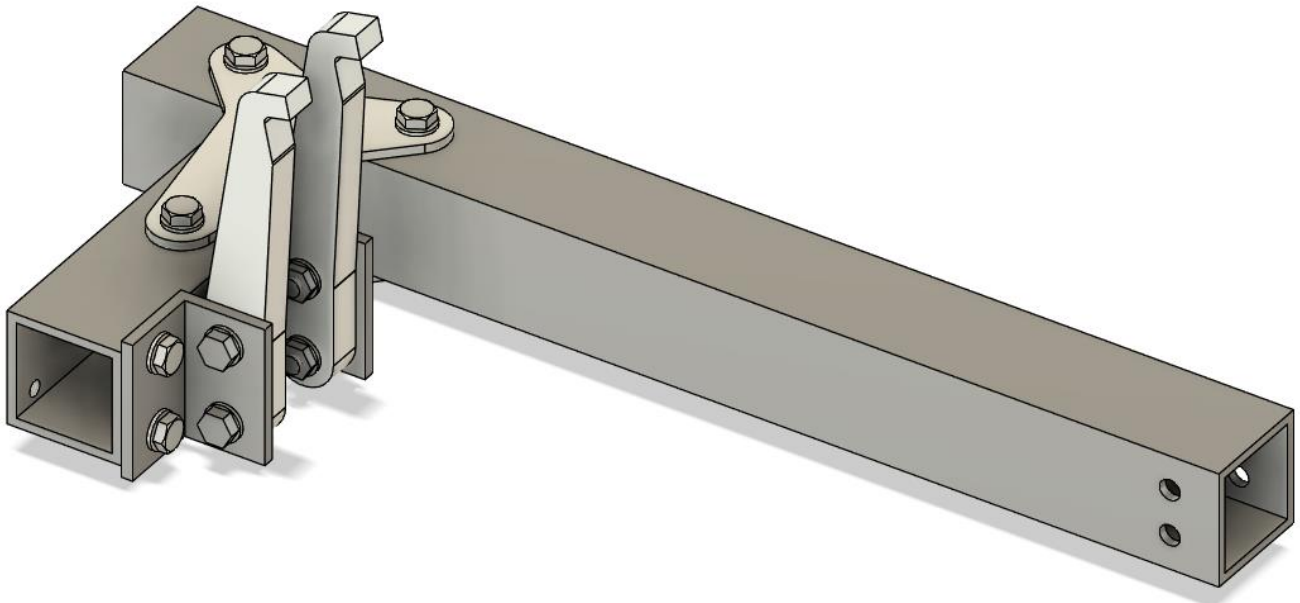
### 3.4: Required:

- 8x M8x10 hex bolts
- 8x M8 washers
- 2x T-brackets

Assemble the two parts as shown. A small round file may be needed to enlarge the holes in the T-brackets if hole locations are not perfect.



The moving side of the body is now completed.

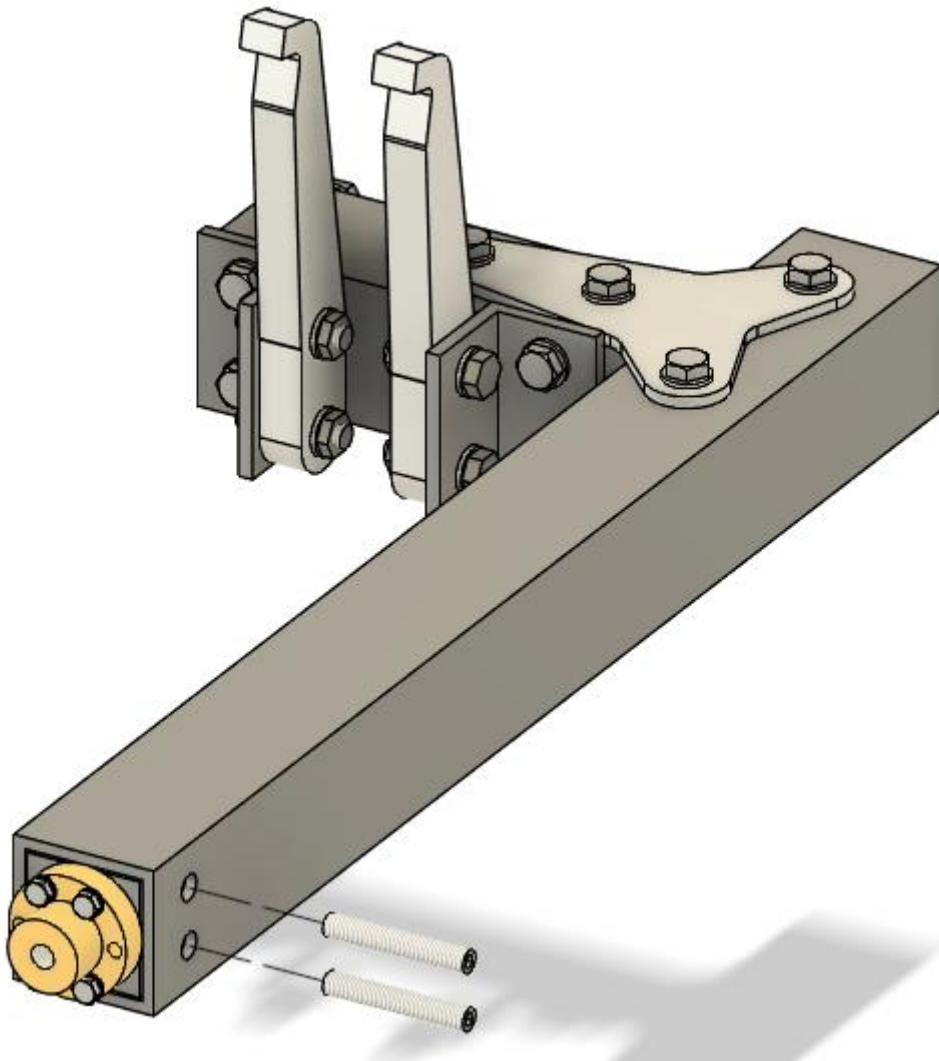


## 4: Final assembly of the press

### 4.1: Required:

- 2x M8x50 flat point slotted grub screws

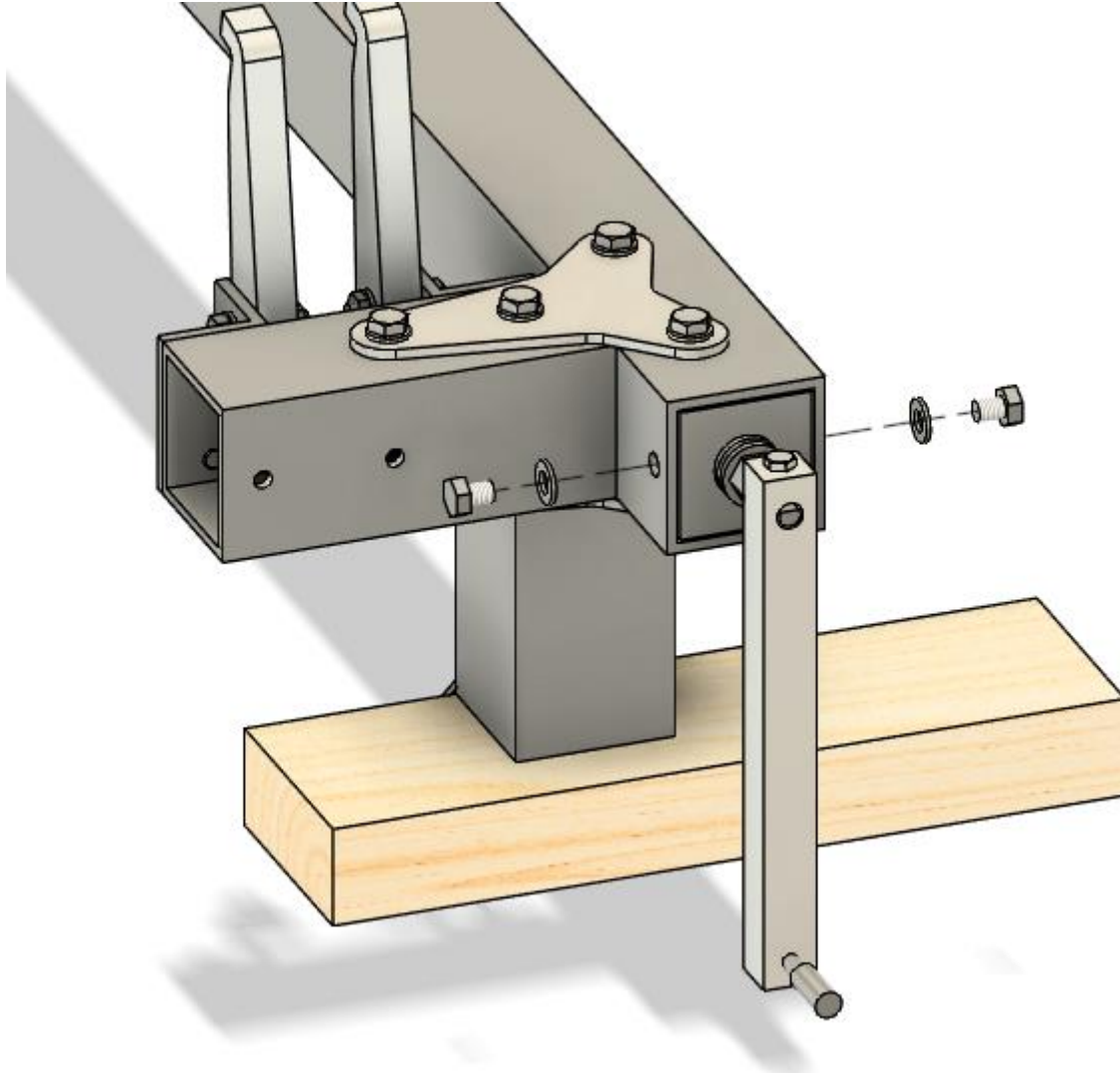
Insert the leadscrew nut assembly into the end of the box section so that the four 9mm holes line up. It may be necessary to file the edges of the c-channel down to account for the radii of the box section corners. Pin it in place using the two grub screws. They will be loose at this stage; they are captured by the main body once the assembly is complete.



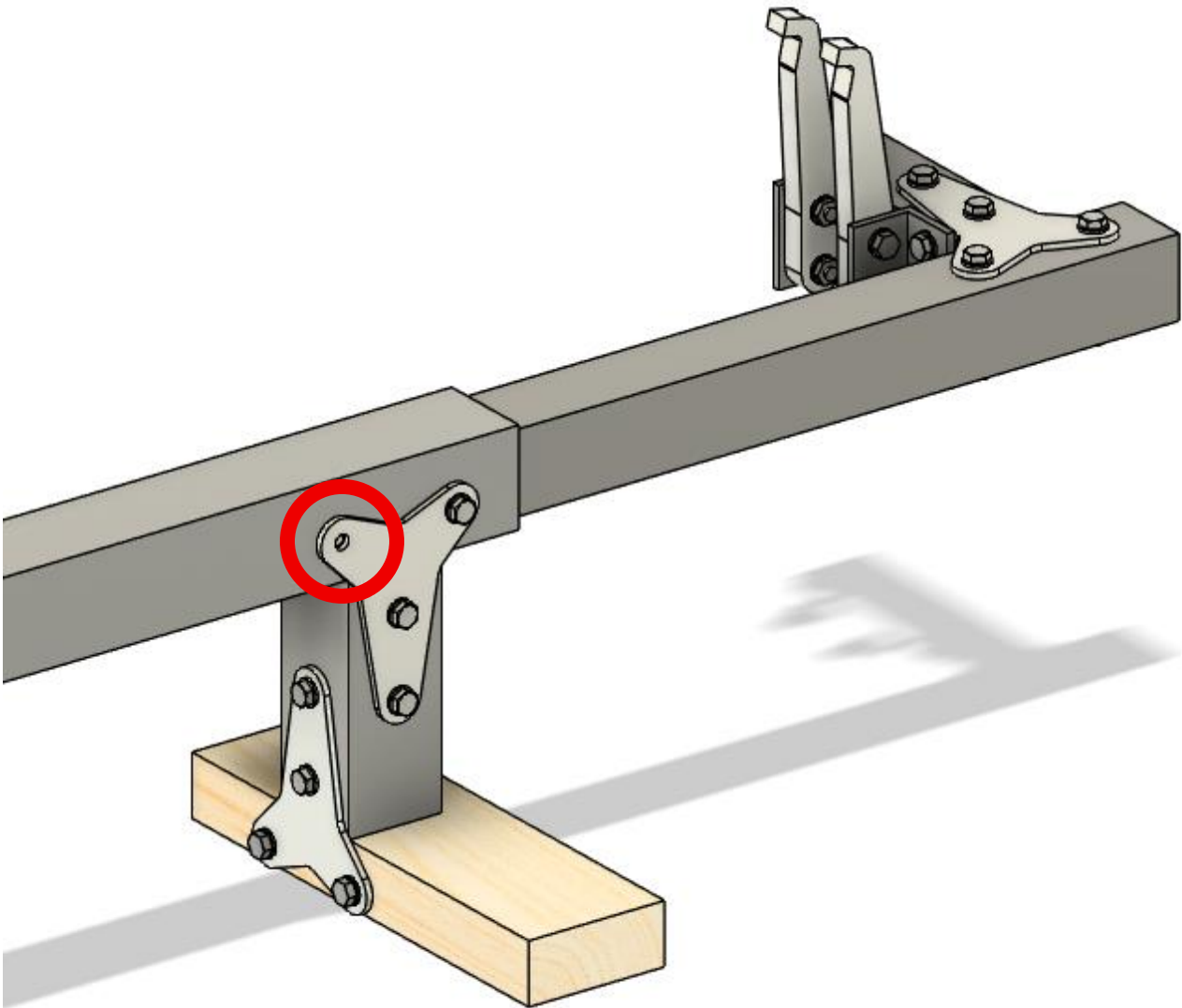
#### 4.2: Required:

- 2x M8x10 hex bolts
- 2x M8 washers

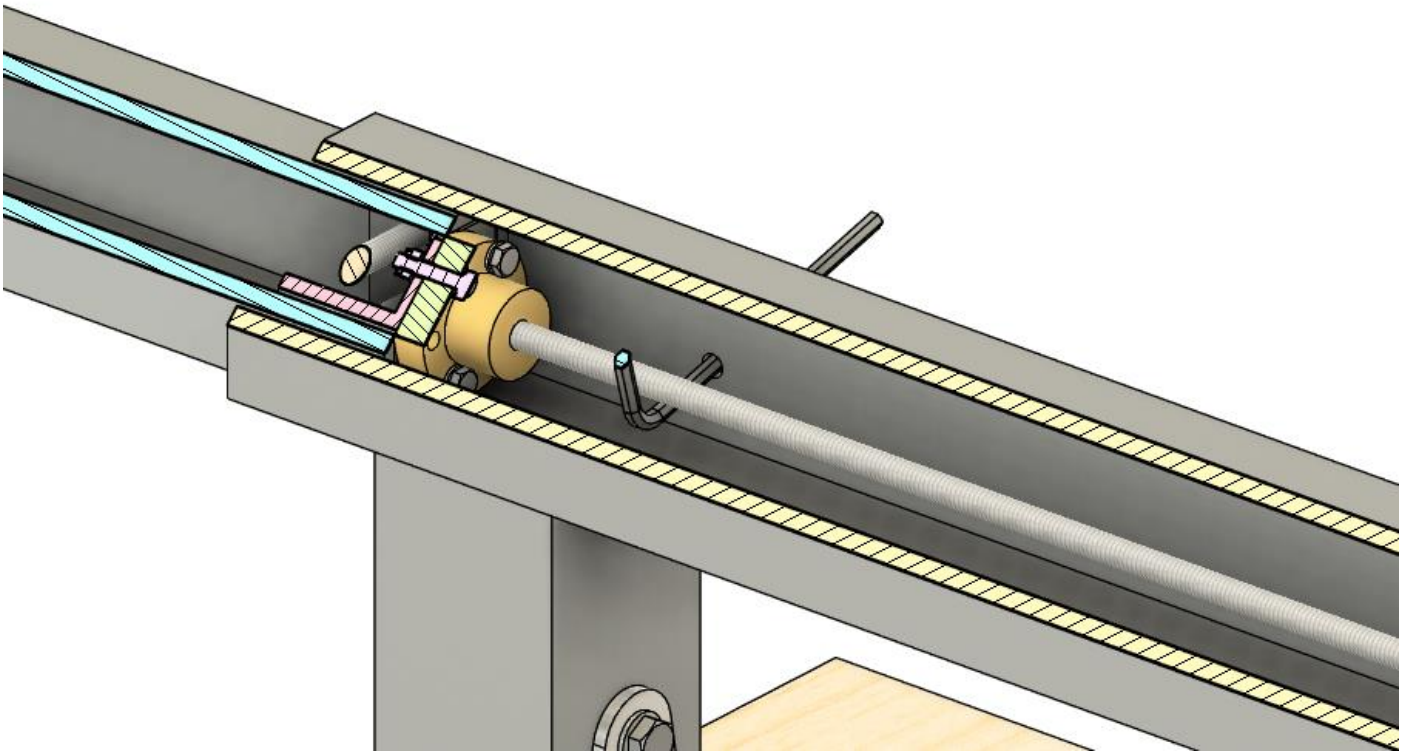
Insert the handle end of the leadscrew assembly into the main body. It may also need to be filed to account for the corner radii. Secure it in place using the M8 bolts and washers.



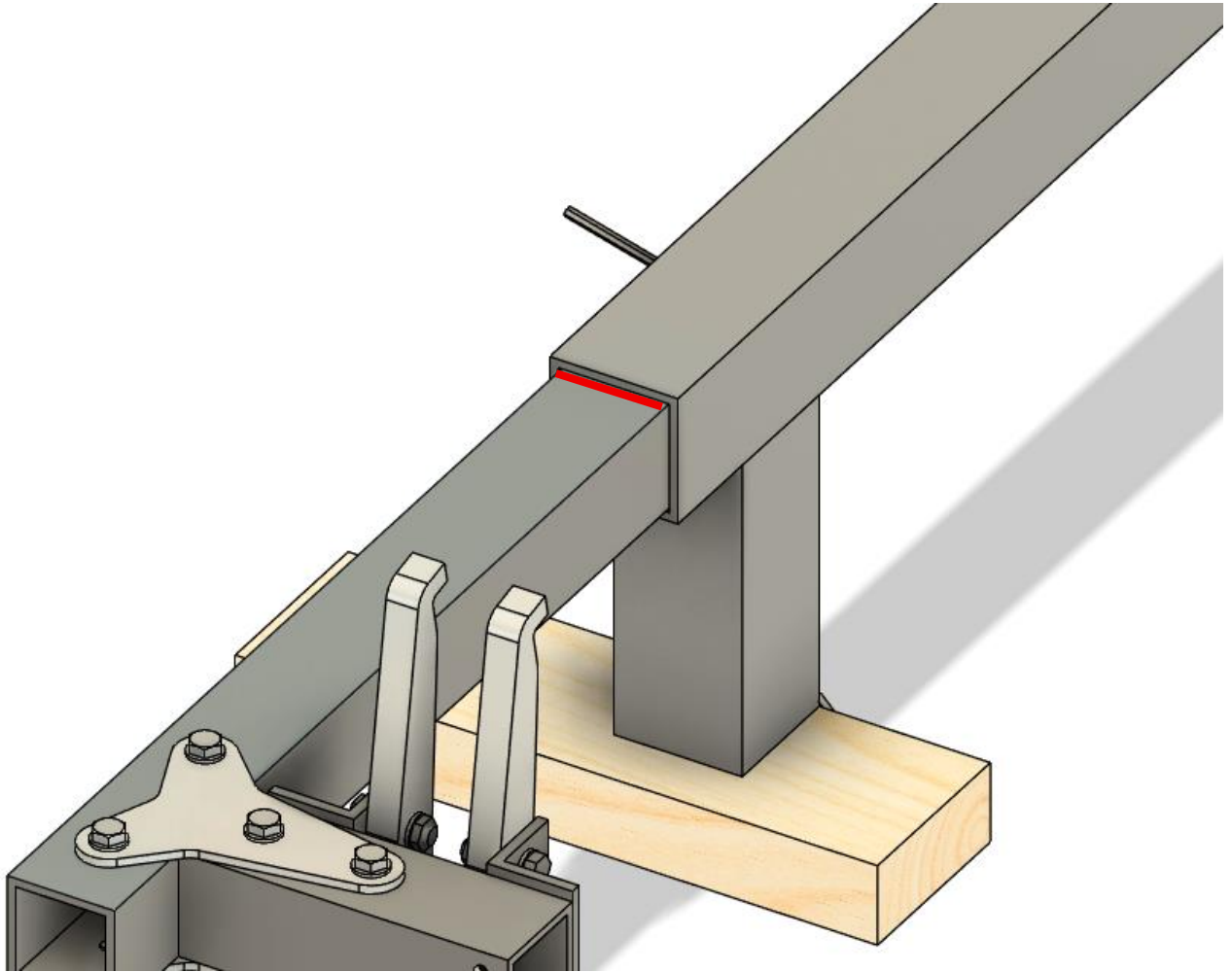
4.3: Place the moving assembly in the end of the main body, and temporarily remove the highlighted bolt.



4.4: Insert an allen key through the bolt hole and lift the leadscrew to align it with the leadscrew nut. Once aligned, thread the leadscrew into the flanged nut.



4.5: Once a few threads of the leadscrew are engaged with the leadscrew nut, make a mark where the base and moving parts meet to avoid extending the press too far in future and needing to realign the leadscrew. Replace the bolt that was removed earlier.



4.6: The basic version of the press is now complete. Before pressing a bow for the first time, test it thoroughly by clamping a piece of timber or equivalent between the fingers and applying a significant force to ensure nothing slips under load.

