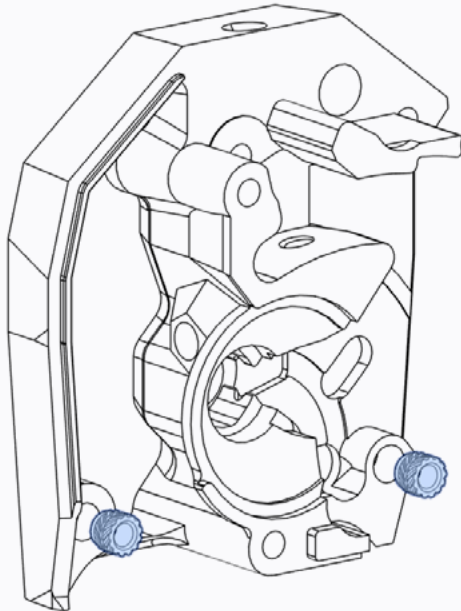


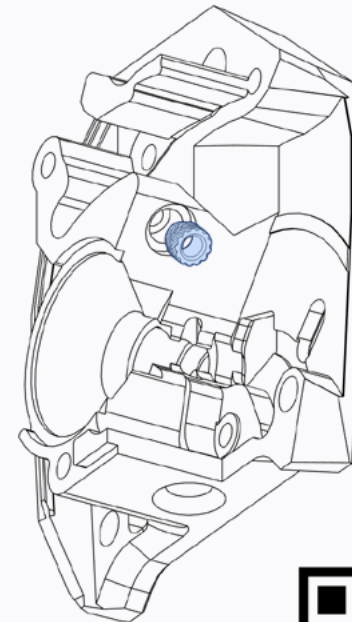
## HEAT SET INSERTS



### HEAT SET INSERTS

This design relies heavily on heat set inserts. Make sure you have the proper inserts (check the hardware reference for a close-up picture and the [Sourcing Guide](#) for dimensions).

If you've never worked with heat set inserts before we recommend you watch the linked guide.



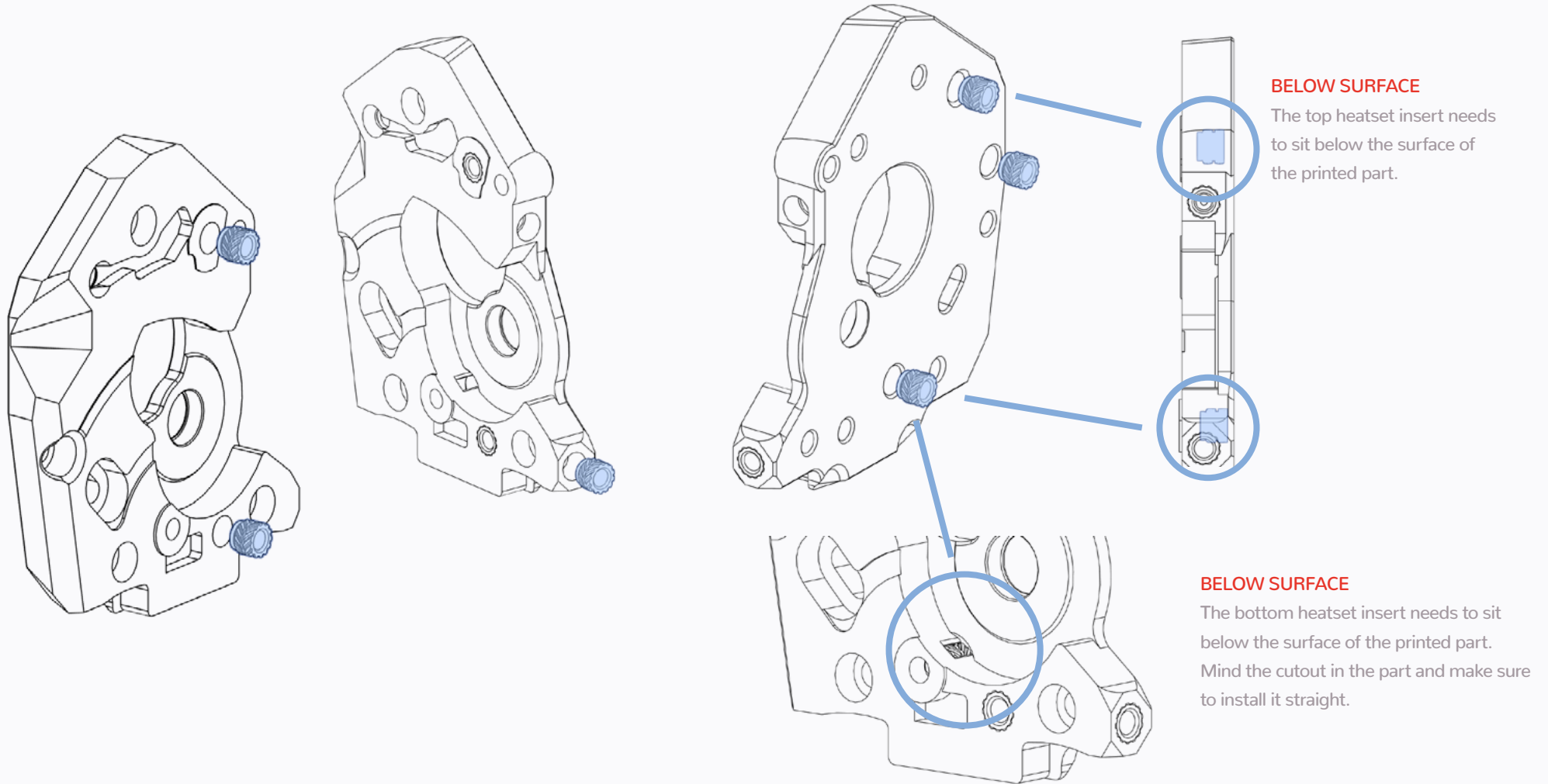
Heat Set Insert



<https://voron.link/m5ybt4d>

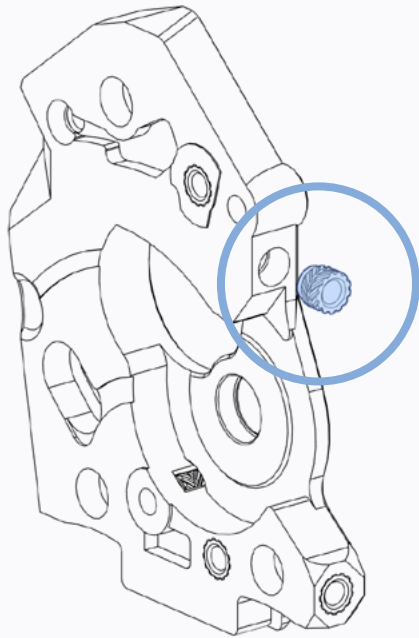
## HEAT SET INSERTS

WWW.VORONDESIGN.COM

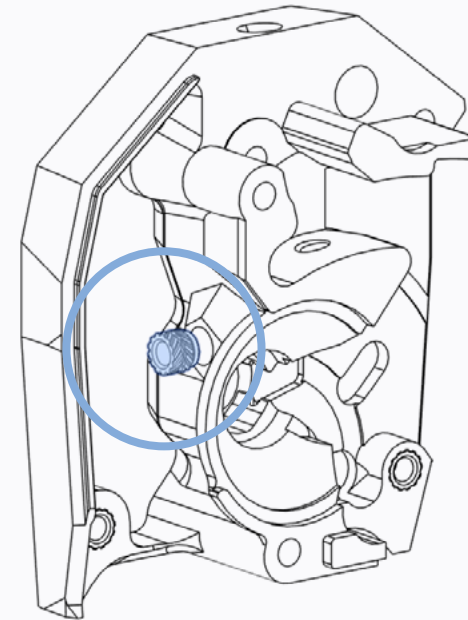


**OPTION: TOOLHEAD PCB**

If you opt to use a toolhead PCB, add additional heat set inserts into locations highlighted below.



Heat Set Insert



**HEAT SET INSERT**

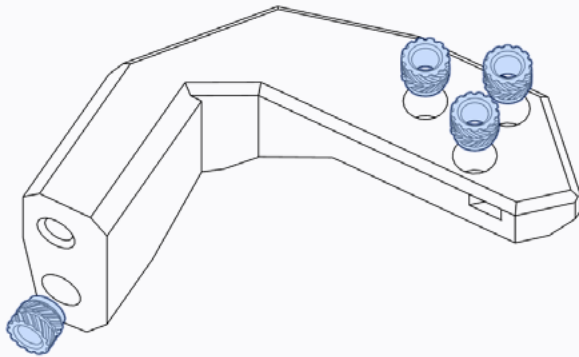
Be careful when inserting this heat set insert. It's easy to accidentally touch the left side of the part with the soldering iron.

## HEAT SET INSERTS

WWW.VORONDESIGN.COM

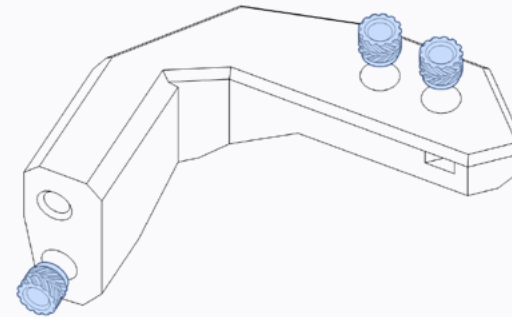
### GENERIC CABLE CHAINS

The 3-hole pattern is usually found on generic cable chains.



### IGUS CABLE CHAINS

IGUS chains have 2 mounting holes.

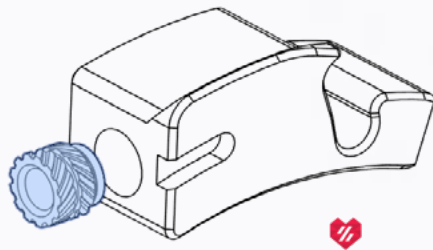


Heat Set Insert

### PRINTER SPECIFIC MOUNTS

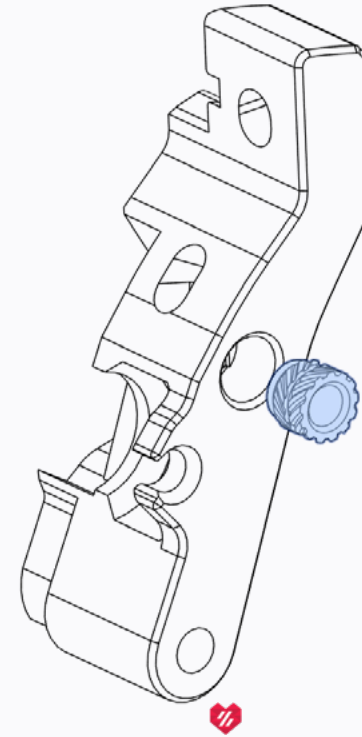
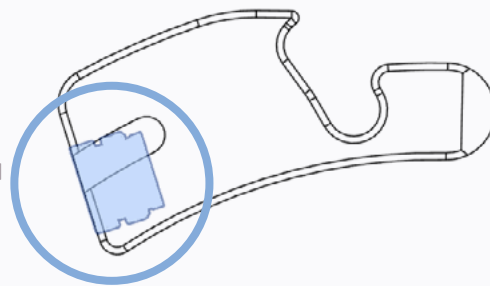
V2, Trident and Legacy use the same printed parts. Extra parts are included for SwitchWire.

## HEAT SET INSERTS



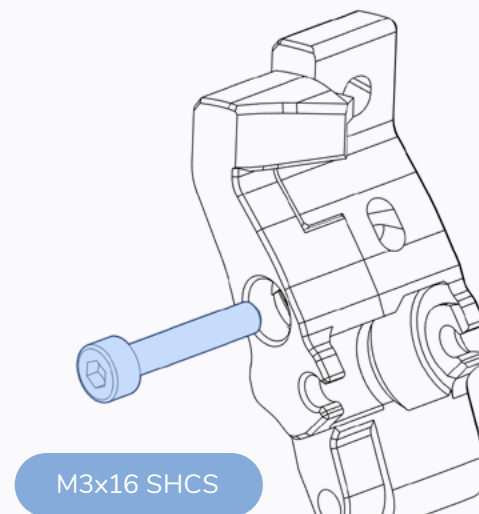
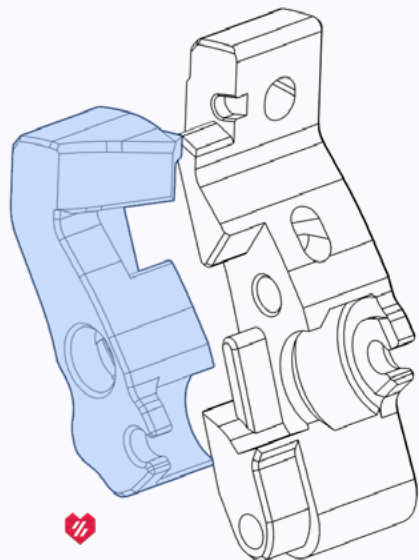
### FLUSH WITH SURFACE

The heatset insert needs to sit flush or slightly below the surface of the printed part.



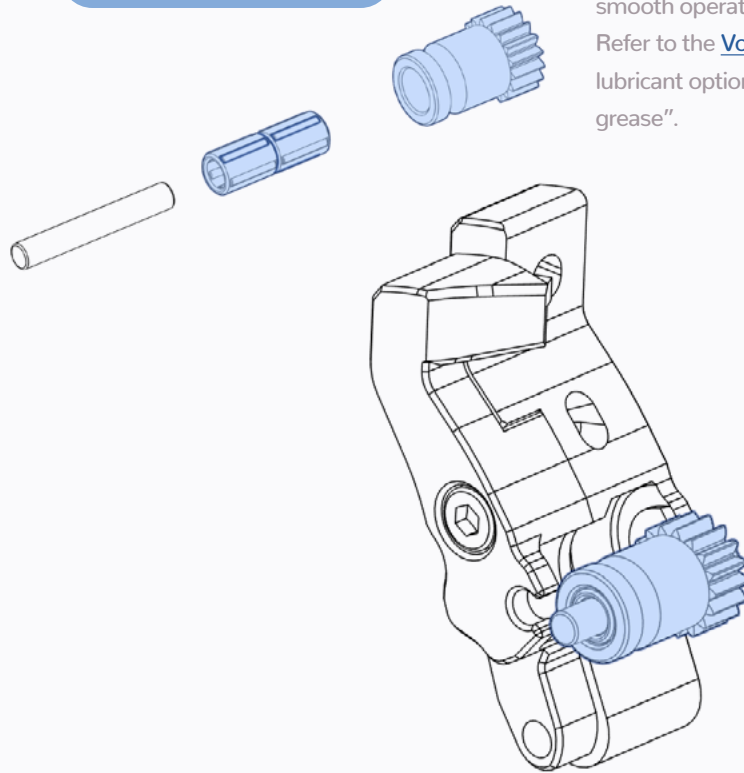
### ACCENT PART?

Look for Voron heart next to the part. It indicates that this is a part that is usually printed in the accent color.



## GUIDLER ARM

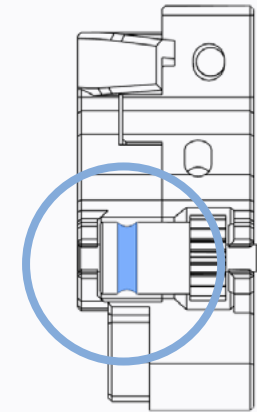
### BMG Idler Assembly



### LUBRICATE BEARINGS

A lubrication film is required to ensure smooth operation and longevity.

Refer to the [Voron sourcing guide](#) for lubricant options - look for a "light grease".



### MIND ORIENTATION

Make sure to orient the idler assembly as shown above.

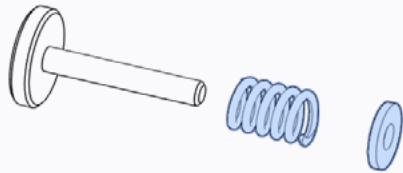


## GUIDLER ARM

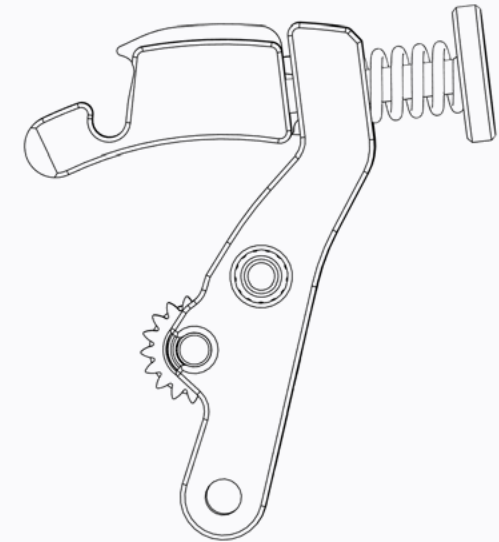
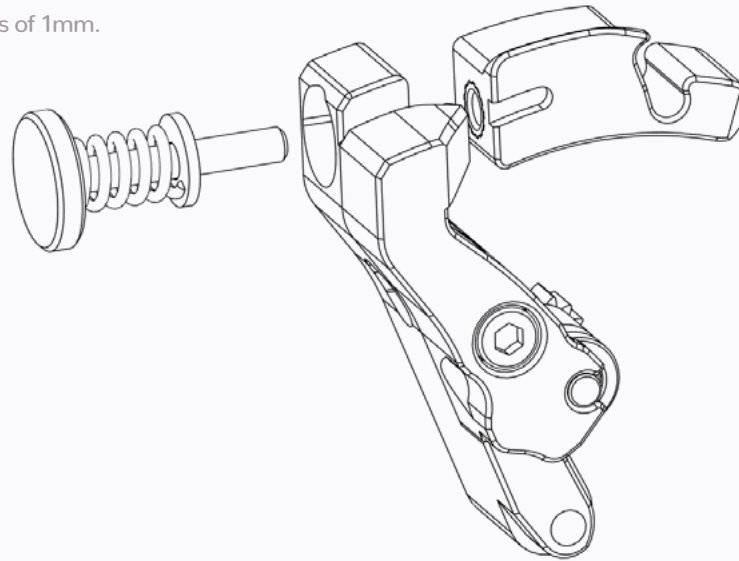
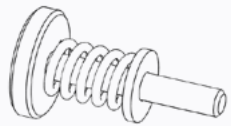
WWW.VORONDESIGN.COM

### A NOTE ON SPRINGS

Longer/shorter/stiffer springs will change the tension characteristics and have an impact on how well the tension mechanism works. Consider buying the [original Bondtech part](#) as those are known to work well. If sourced from a different vendor check if it's roughly 12mm long with an outer diameter of 6mm and a wire thickness of 1mm.



BMG Thumbscrew Assembly



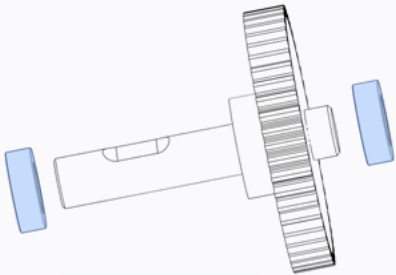
## MOTOR PLATE

### CHECK BEARING FIT

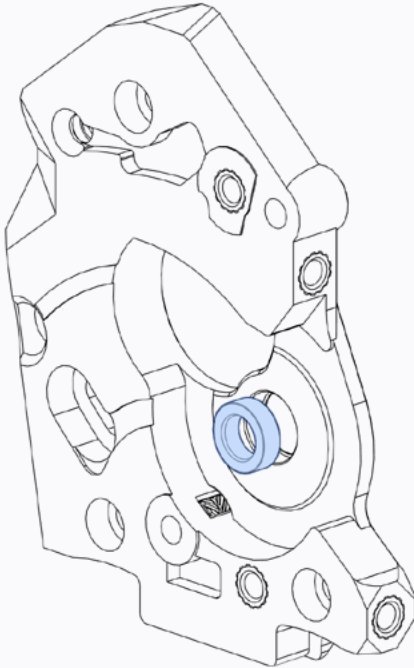
The bearings must slip on and off the shaft easily to allow the gear to self-centre.

Pressing the bearings on the shaft will damage them.

Lightly sand the shaft if required.



MR85 Bearing

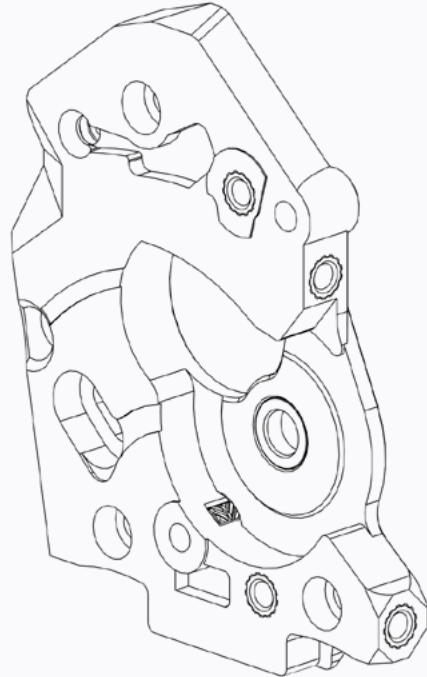


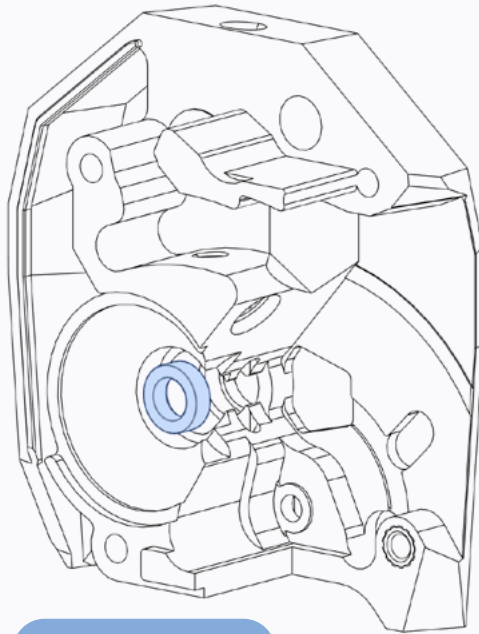
MR85 Bearing

### BEARING FIT

Fully seat the bearing into the plastic pocket. Apply even pressure to insert them. Avoid pressing on the inner ring of the bearing.

If the fit is too tight the printed parts are likely over-extruded.

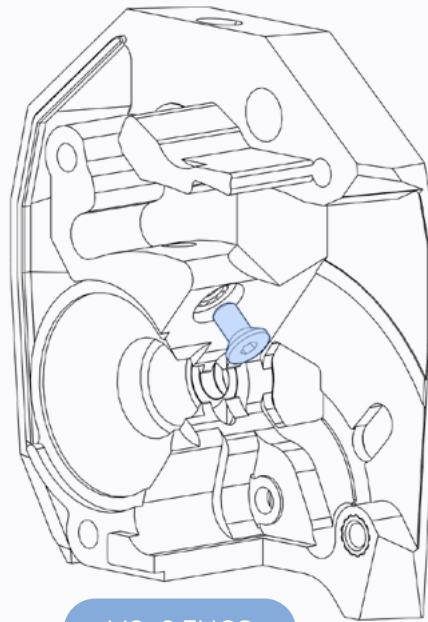




MR85 Bearing

**BEARING FIT**

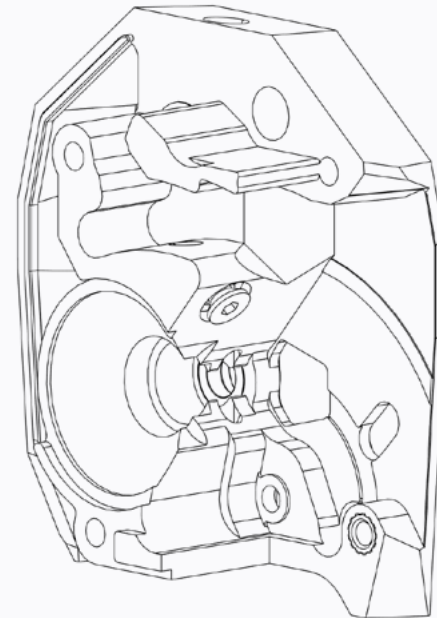
Fully seat the bearing into the plastic pocket. Apply even pressure to insert them. Avoid pressing on the inner ring of the bearing.



M3x6 FHCS

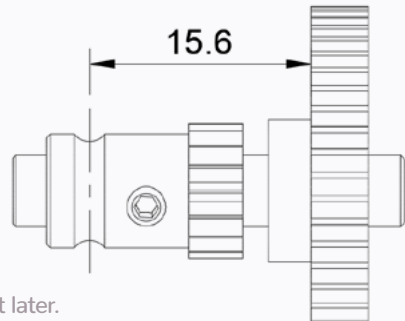
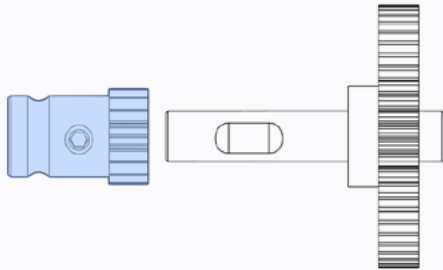
**THREAD LOCKER PLEASE**

Adding a small amount of medium strength thread locker to this flat head screw will keep it from coming loose over time..



**A NOTE ON GEARS**

Poorly made gears often cause print quality issues. For best performance consider sourcing the [original Bondtech parts](#).

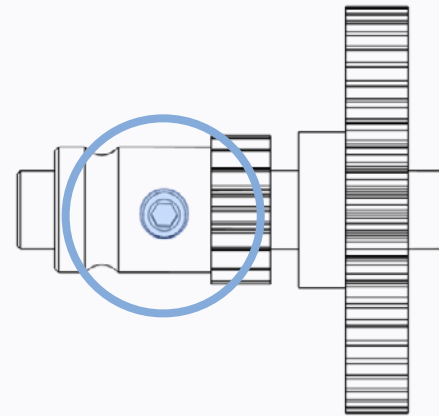


**INITIAL POSITION**

The final position is set later.

**DRIVE GEAR**

Make sure the set screw in the filament drive gear is seated against the notch in the shaft. Carefully tighten the set screw, the head is easy to strip.

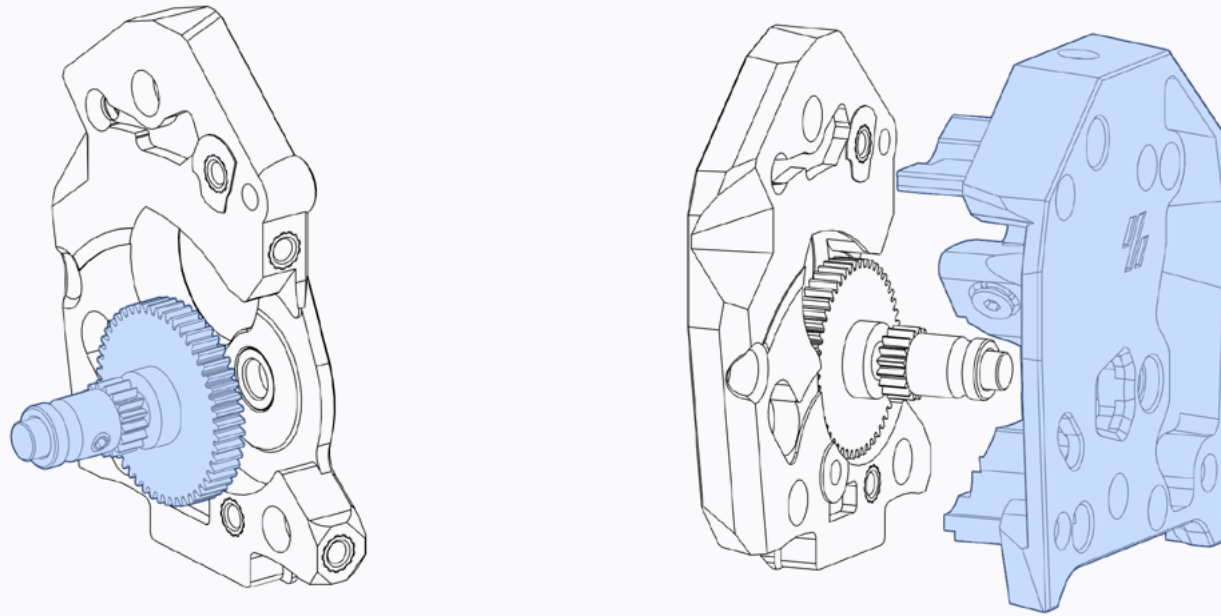


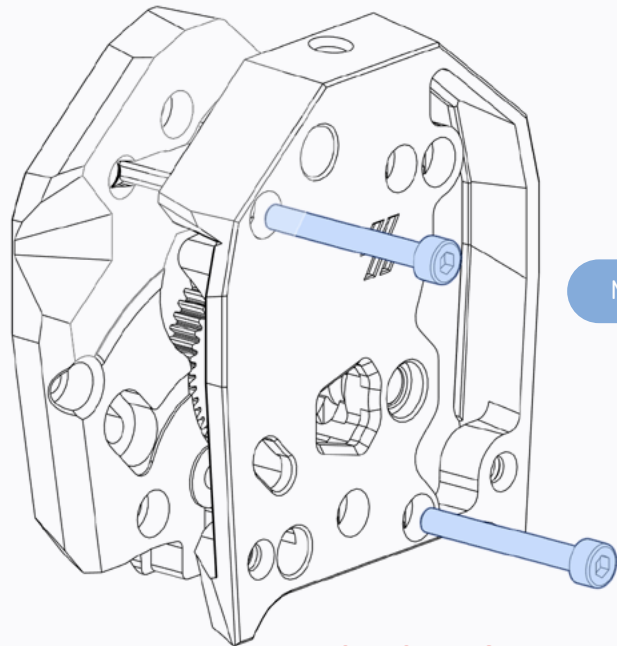
**THREAD LOCKER**

The final position of the drive gear is set in a later step. Common thread lockers have a long enough working time to complete the steps without issues.

Familiarize yourself with the steps on the next 3 pages before you apply thread locker.

Complete the steps on the next 3 pages after applying the thread locker.

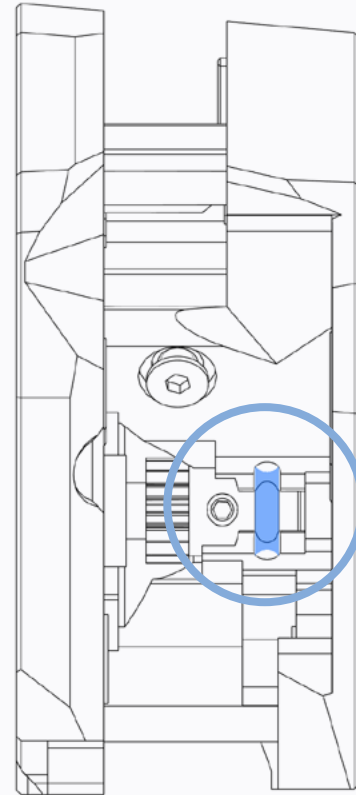




M3x25 SHCS

**DON'T OVERTIGHTEN**

Tighten until the plastic bends and cracks.  
Back up 2 turns, discard parts, reprint and try again.



**INITIAL ALIGNMENT CHECK**

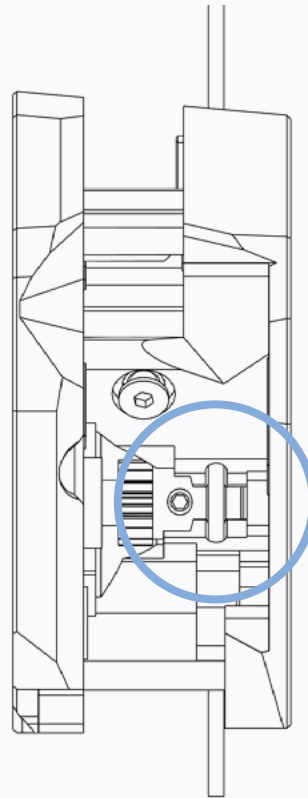
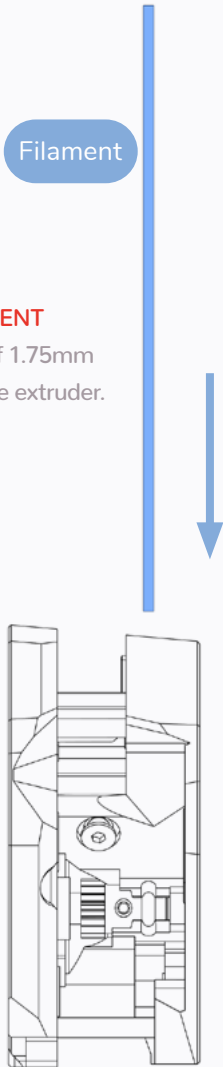
Check if the filament path aligns with the toothed section of the drive gear.

## DRIVE ALIGNMENT

Filament

### INSERT FILAMENT

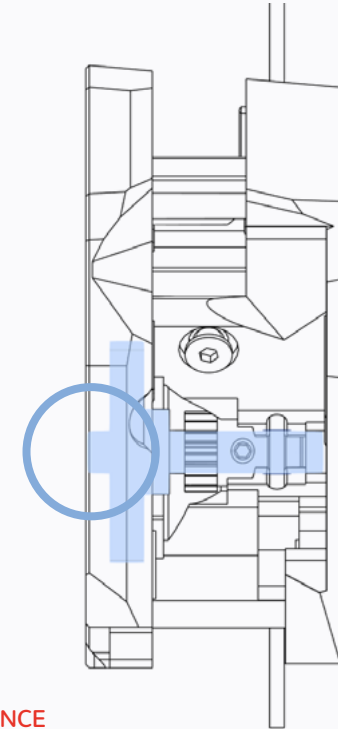
Insert a piece of 1.75mm filament into the extruder.



### CHECK ALIGNMENT

With the filament inserted, verify if the filament path and drive gear are aligned.

Loosen the set screw and adjust the position of the drive gear if required.



### CHECK FOR CLEARANCE

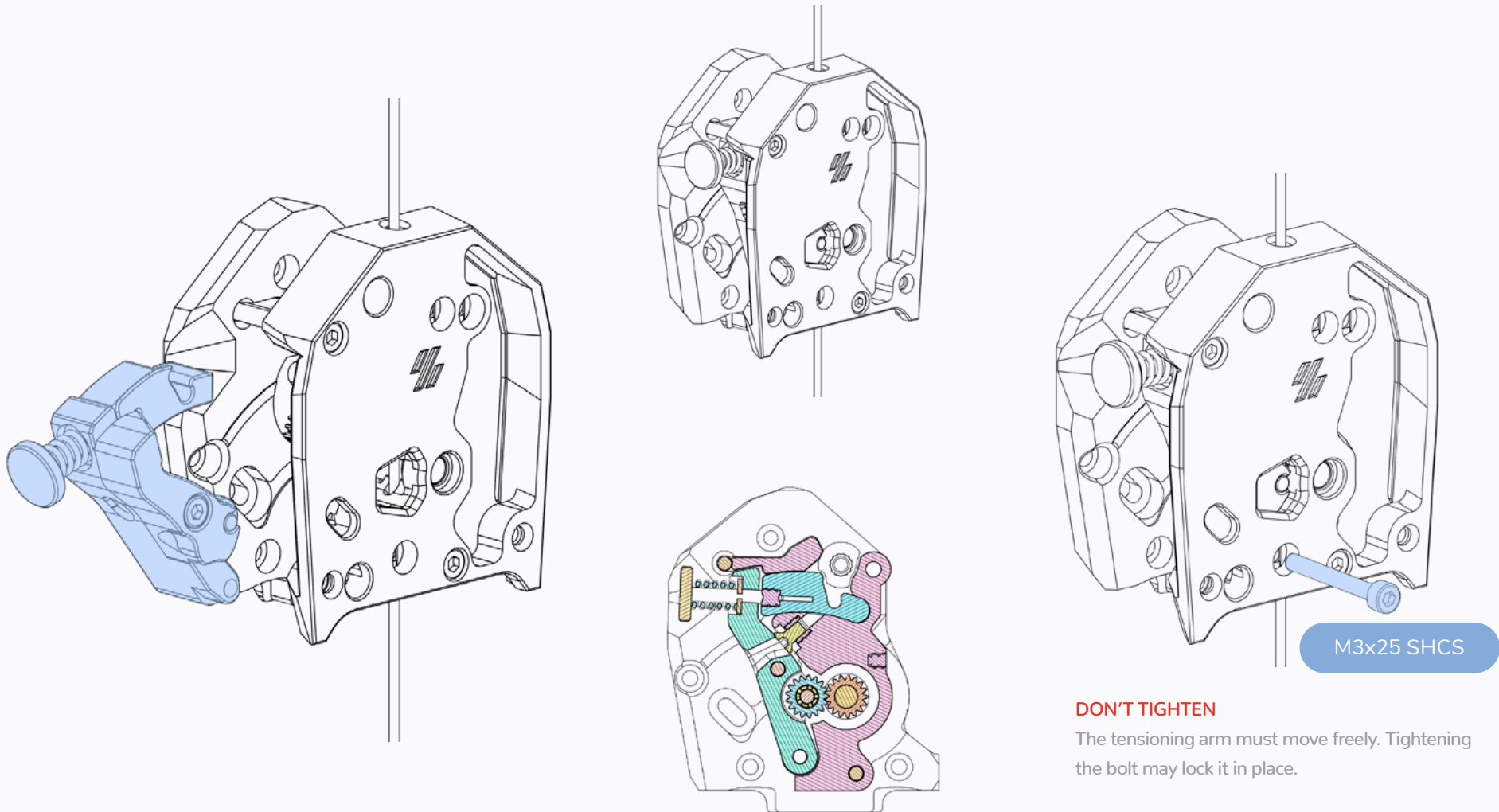
The drive shaft must not touch the motor housing. Make sure it does not sit above the surface of the printed part.

Check if the shaft has sufficient clearance when fully seated.

Depending on the shafts tolerances you may need to adjust the position of the drive gear or sand the face of shaft.

## TENSION ARM

WWW.VORONDESIGN.COM



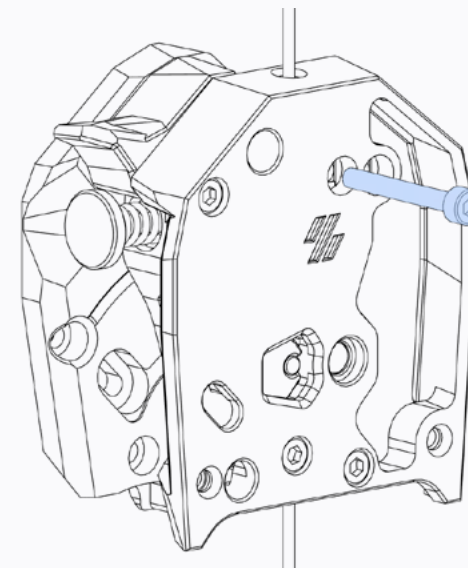
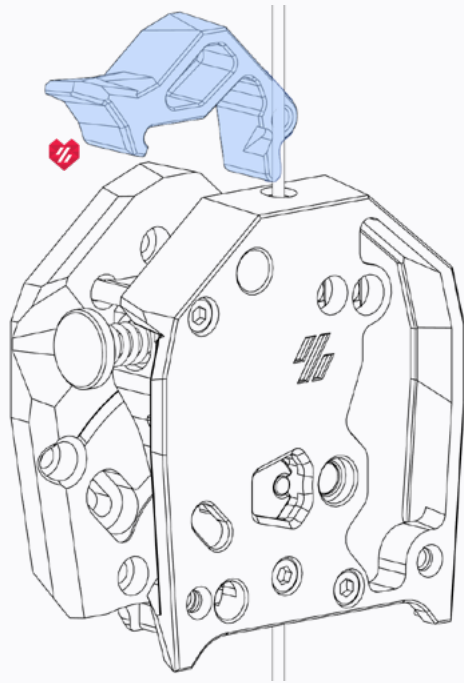
M3x25 SHCS

### **DON'T TIGHTEN**

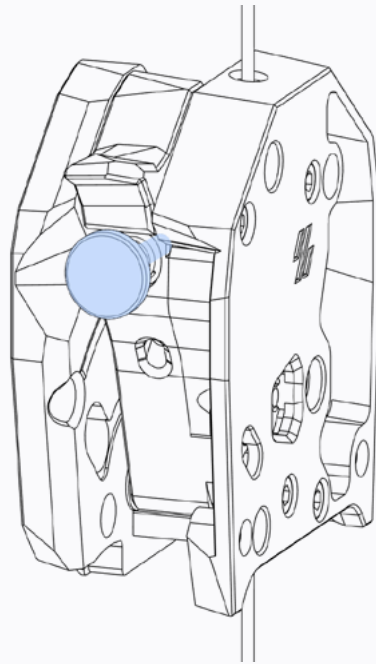
The tensioning arm must move freely. Tightening the bolt may lock it in place.



LATCH

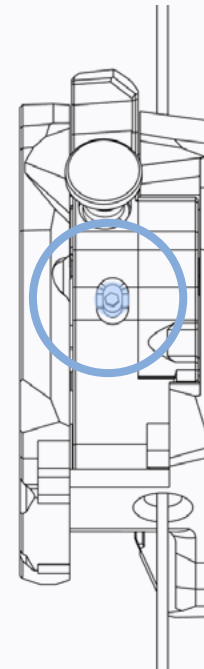


M3x25 SHCS



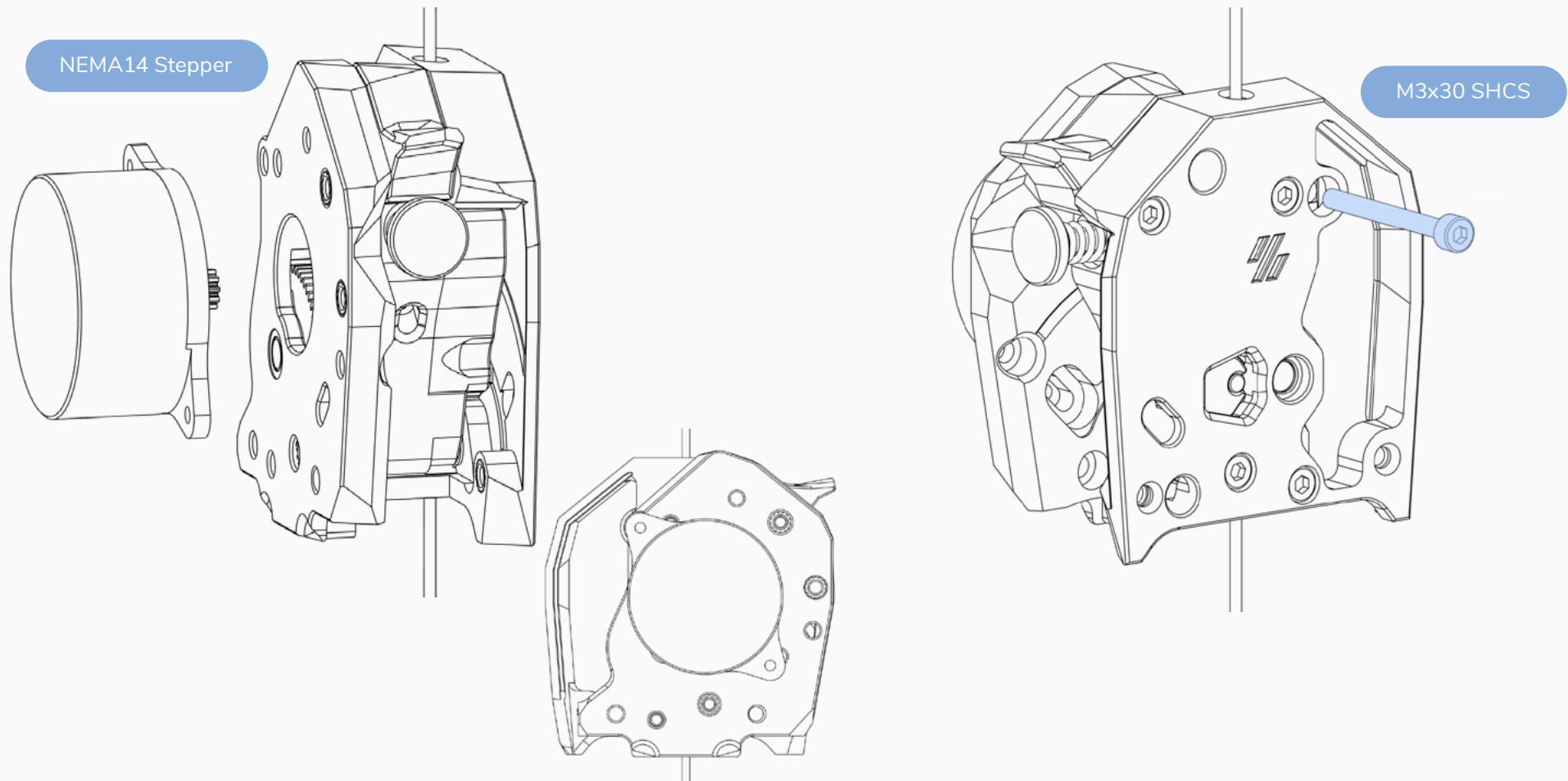
**TENSION KNOB**

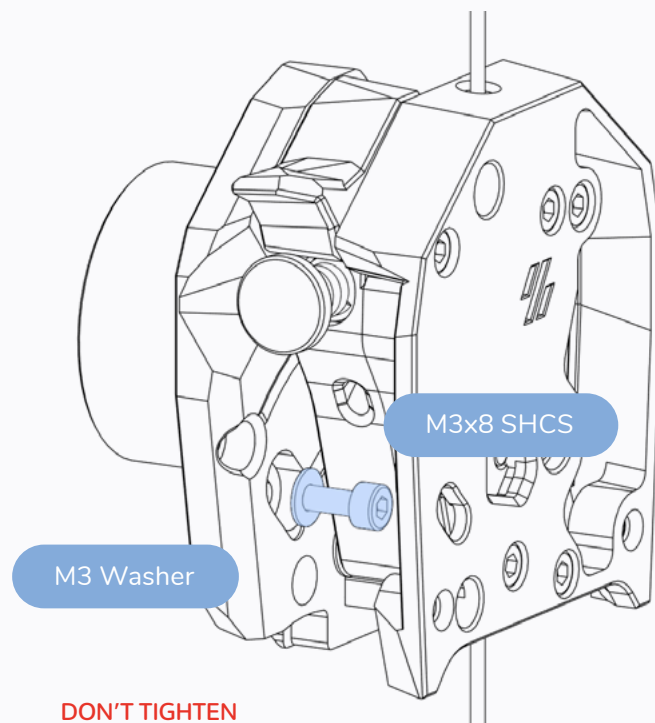
Turning the thumb screw clockwise will increase the tension and grip on the filament. Too much tension will result in print issues.



**ANTI SQUISH THINGYMAJIG**

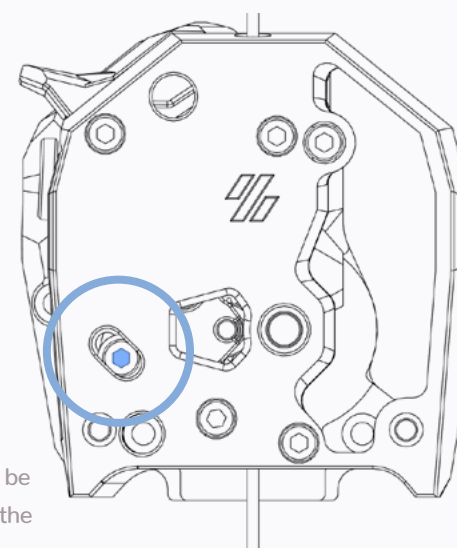
Softer and flexible materials will deform and extrude poorly under too much tension. ClockWork2 adds an adjustment feature to set the minimum distance between the drive gear and the idler, limiting the squish on the filament, and to prevent the gears from meshing too tightly or binding up the extruder.





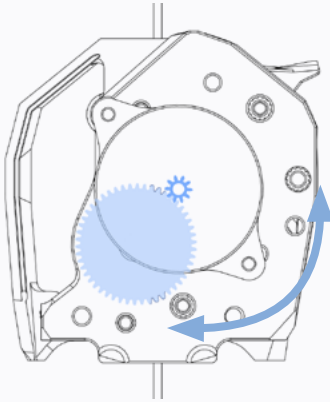
**DON'T TIGHTEN**

The motor position will be adjusted in the next steps. Don't fully tighten just yet.



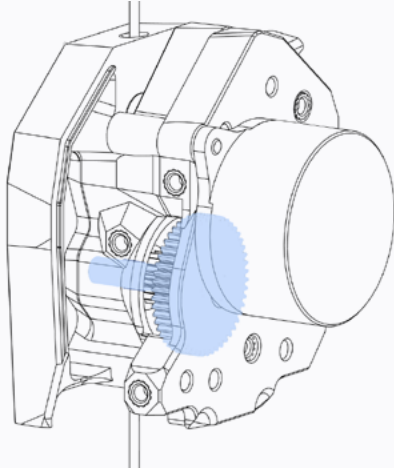
**ACCESS HOLE**

The second motor bolt can be accessed from the front of the extruder.



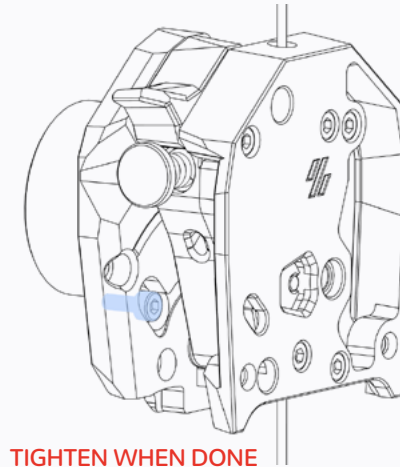
**SET GEAR MESHING**

Adjust the stepper motor position so that the motor and extruder gear teeth fully mesh /overlap with each other. There should be a very small gap between the faces of the gear teeth; the gears must not press tightly against each other.



**CHECK GEAR PLAY**

The gear should have a slight play and should not be fully tight against the pinion. Adjust the position of the motor until you have a faint play.



**TIGHTEN WHEN DONE**

Don't forget to tighten the second motor bolt after adjusting.



<https://voron.link/u6ehxsw>

## NEXT STEPS

### ASSEMBLY COMPLETED! ... NEXT STEP: SETUP & CALIBRATION

This manual is designed to be a reference manual for the build process of a Voron StealthBurner toolhead. Additional details about the build and background on advanced topics can be found on our documentation page linked below.

The software setup and other initial setup steps with your new printer can also be found on our documentation page. We recommend starting [here](#).



<https://docs.vorondesign.com/>



<https://github.com/VoronDesign/Voron-Afterburner>

### HOW TO GET HELP

If you need assistance with your build, we're here to help. Head on over to our Discord group and post your questions. This is our primary medium to help VORON Users and we have a great community that can help you out if you get stuck. Alternatively, you can use our subreddit.



<https://discord.gg/voron>



<https://www.reddit.com/r/VORONDesign>

### REPORTING ISSUES

Should you find an issue in this document or have a suggestion for an improvement please consider opening an issue on GitHub (<https://github.com/VoronDesign/Voron-Afterburner/issues>).

When raising an issue please include the relevant page numbers and a brief description; annotated screenshots are also very welcome.

We periodically update the manual based on the feedback we get.



---

**Website**  
[www.vorondesign.com](http://www.vorondesign.com)

**Github**  
[github.com/vorondesign](https://github.com/vorondesign)

**Docs**  
[docs.vorondesign.com](https://docs.vorondesign.com)

**Discord**  
[discord.gg/voron](https://discord.gg/voron)

---

