

TenTelescopes.com

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# Skyward 150

## ASSEMBLY MANUAL

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Made with 100% recycled star materials





# The First Rule of Telescope Use

Telescopes collect light and concentrate it into a very small area. While this is great for astronomy, it can also be very dangerous when your telescope is in the presence of our mother of all photon sources- the Sun. We don't want you blinding yourself or burning your house down, so please follow these three rules of telescope safety:

1. Never leave your telescope in a window where sunlight can fall directly onto the mirror, remember the sun angle changes daily and seasonally so it's a good rule of thumb not have it pointed at the sky when it is not in use.
2. Always use the dustcap with all 4 plugs when the telescope is not in use. If you lose the cap or plugs simply put a sheet or towel over it.
3. While it is fun to use a telescope during daylight hours, always be aware of where the sun is and take precautions to point away from it.

# Introduction

## Parts list and printing guidelines

The TenTelescopes team has provided a printing list with settings for you as a guideline for printing the parts necessary for the build. This list can be found [here](#). Inside you'll find details on some of the print settings that will give you the best mechanical properties suited for each individual part. Remember these settings are only a guideline and are open to your own interpretations but we do highly recommend following them.

## File Naming

With your STL files downloaded and your printer warmed up you may be wondering what quantity of each print to make? It's all in the naming. For example: **3xTripod\_Foot.stl** tells you to print 3 pieces of the tripod foot.

## Colour

You are free to print with whatever colours you like of course. The base design of the Skyward 150 recommends black as the colour for the mirror cell and baffles and then a main colour and an accent colour for printed parts, but you can make it as colourful as you like! If you follow the recommended colour scheme then look for the prefix [main], [accent] and [blk] to plan which part is printed in which colour.

# Introduction

## CONTACT US

We want to see you succeed in your telescope build.

Do you have a question ?

Do you want to show off your build or see what others have built?

Ready to share some astronomy images you've taken?

Or maybe do you just want someone to chat with ?

Well why not join the community:



<http://www.tentelescopes.com>



<https://discord.gg/MyYCKFwbj3>



<https://github.com/TenTelescopes/Skyward>  
[150](#)

# Sourcing Building Materials

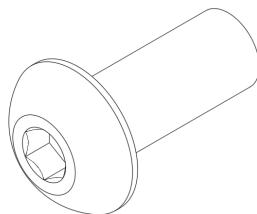
## Bill of materials

You can find the Bill of Materials with a complete list of everything you need to build a Skyward 150 [here](#).

## Local Building Materials

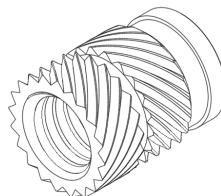
The Skyward 150 makes use of inexpensive ABS and PVC tubing that can be found in the plumbing section of almost any hardware store in North America. Unfortunately, this tubing is not available globally. If you cannot find the tubing in this design but have found some alternative materials, please measure the inside and outside diameter of the tubing and contact us at [admin@tentelescopes.com](mailto:admin@tentelescopes.com)

# Hardware Reference



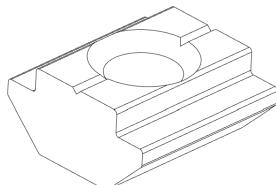
## Button head cap bolt (BHCS)

Metric fastener with a dome shaped head and hex drive. Most commonly found in locations where a fastener makes contact directly with a printed part.



## Heat Set Insert

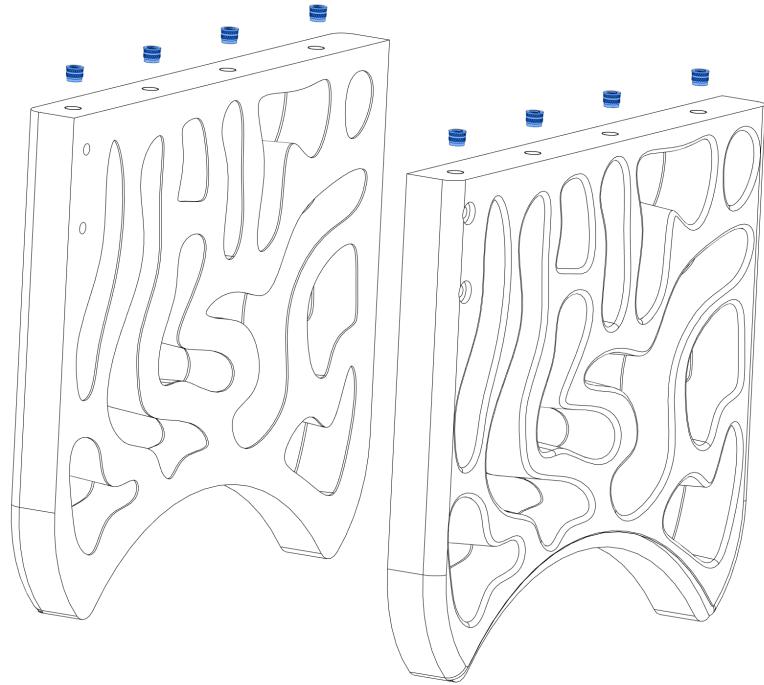
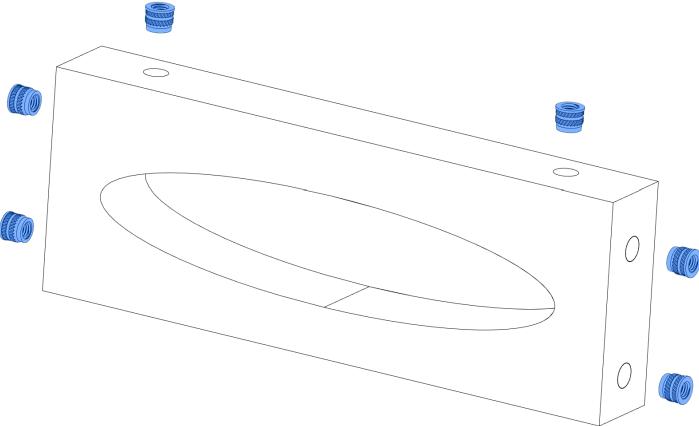
Heat inserts with a soldering tip so that they melt the plastic when installed. As the plastic cools, it solidifies around the knurls and ridges on the insert for excellent resistance to both torque and pull-out.



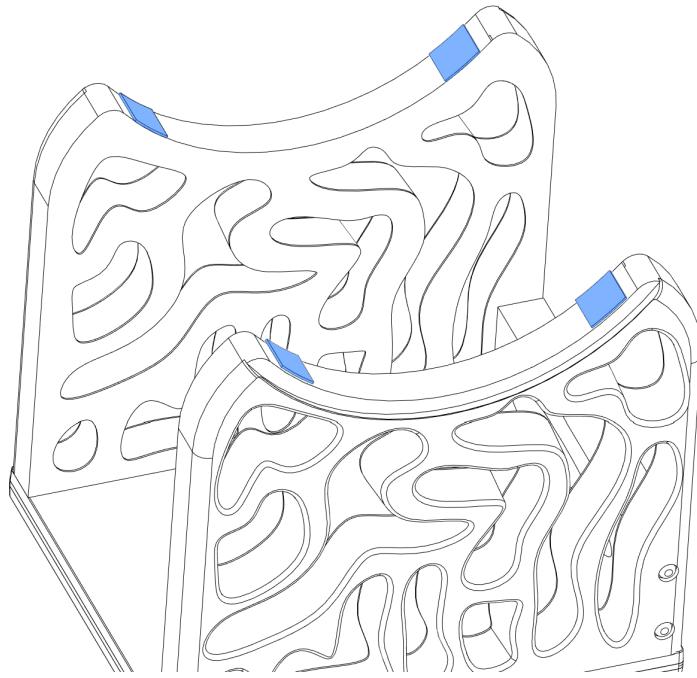
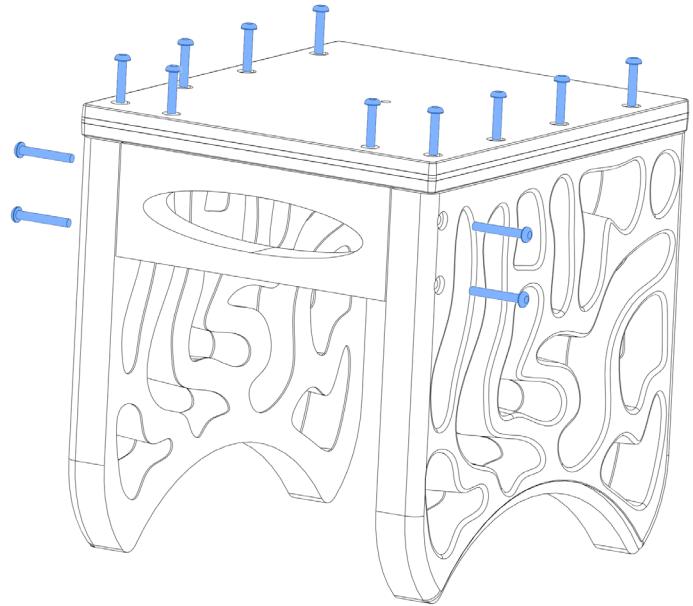
## 2020 Size T-nut

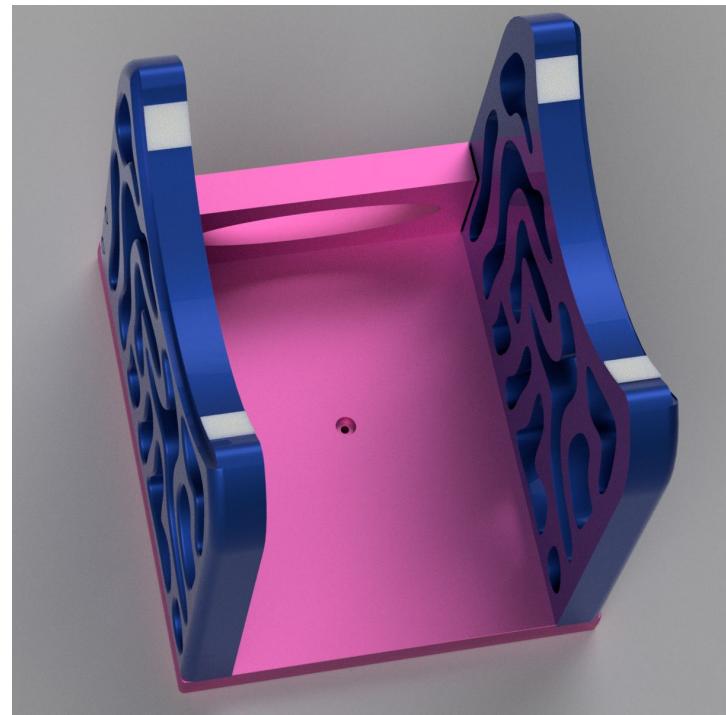
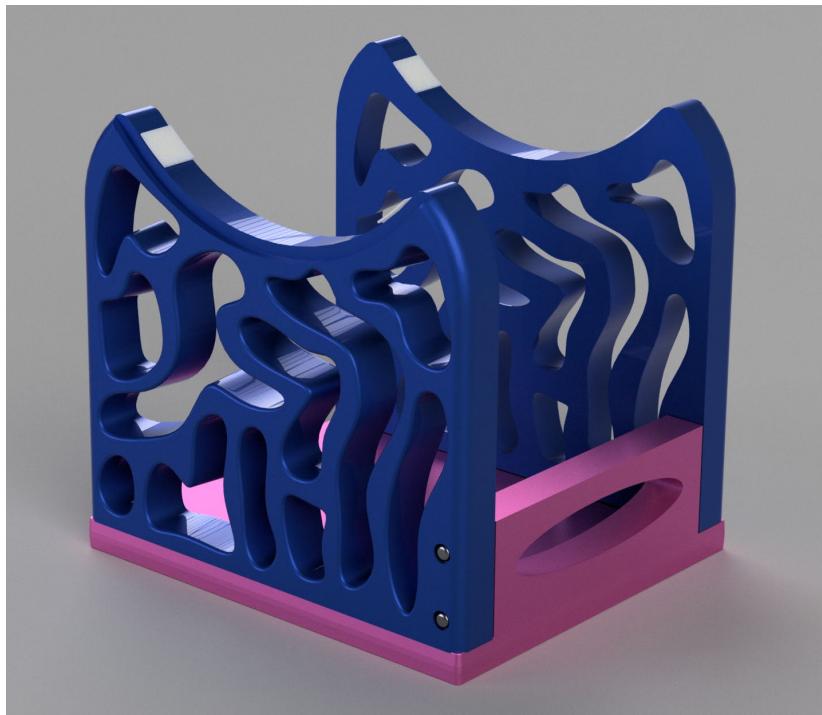
A convenient fastener for quickly mounting onto aluminum extrusions together with a BHCS.

## Assembly

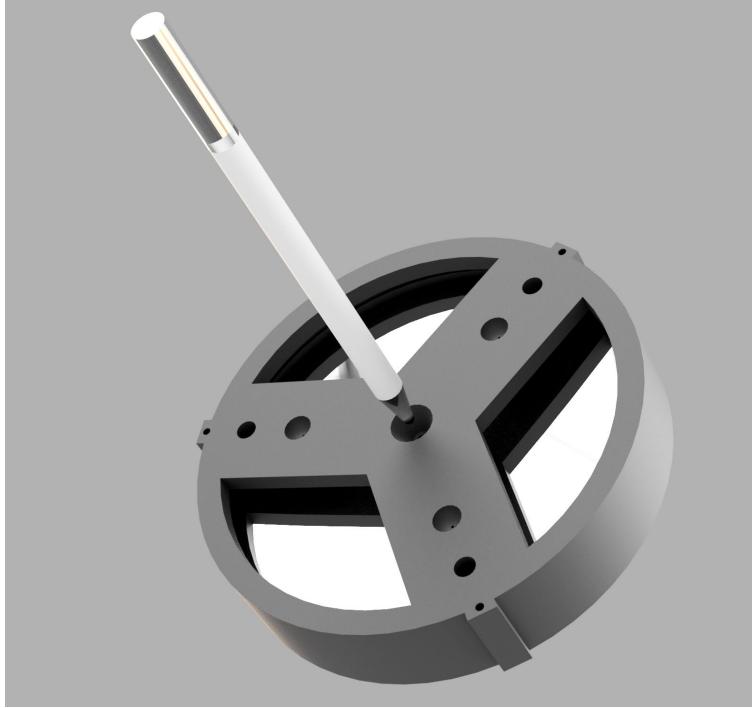


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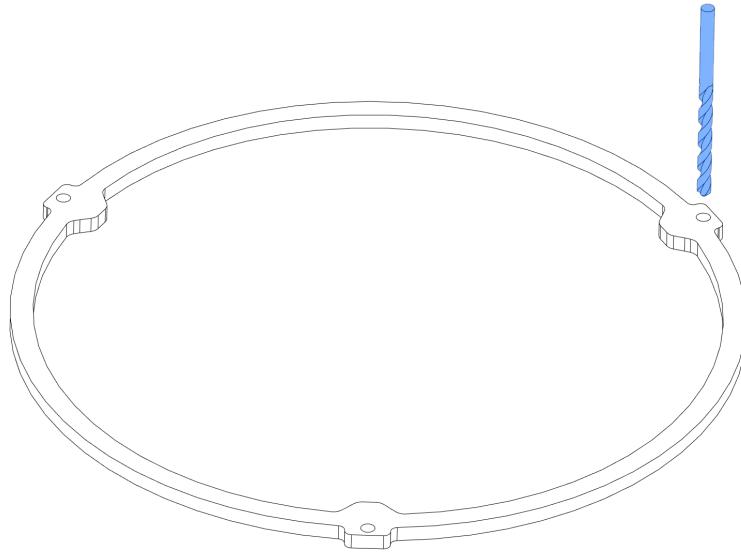
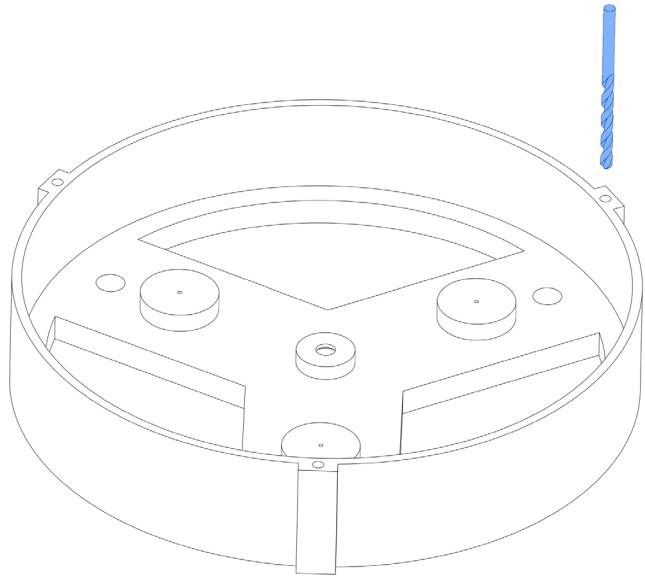




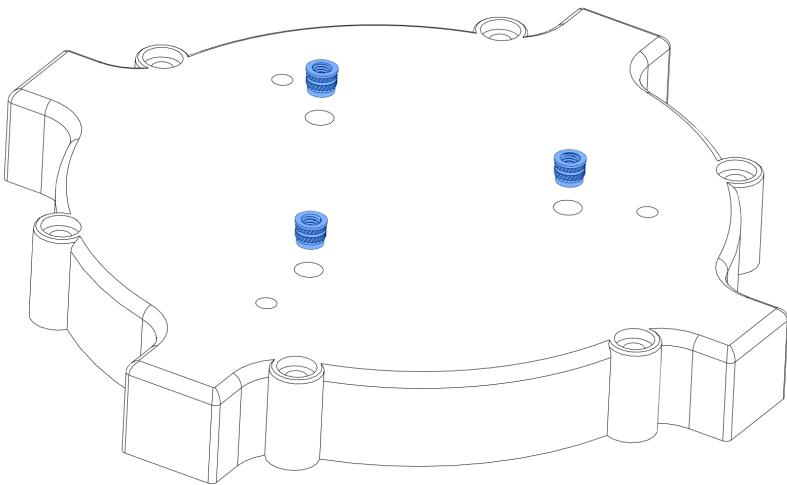
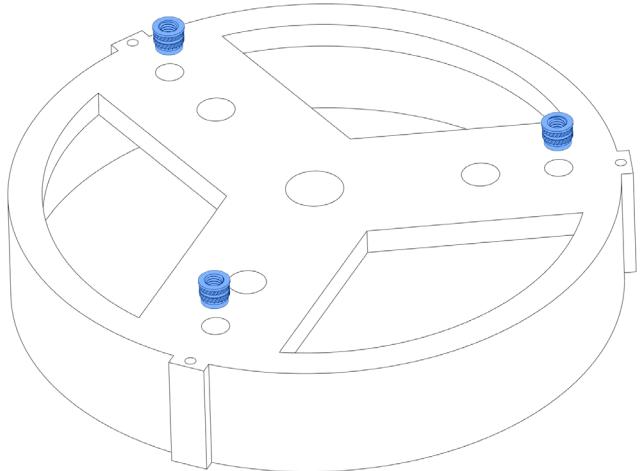
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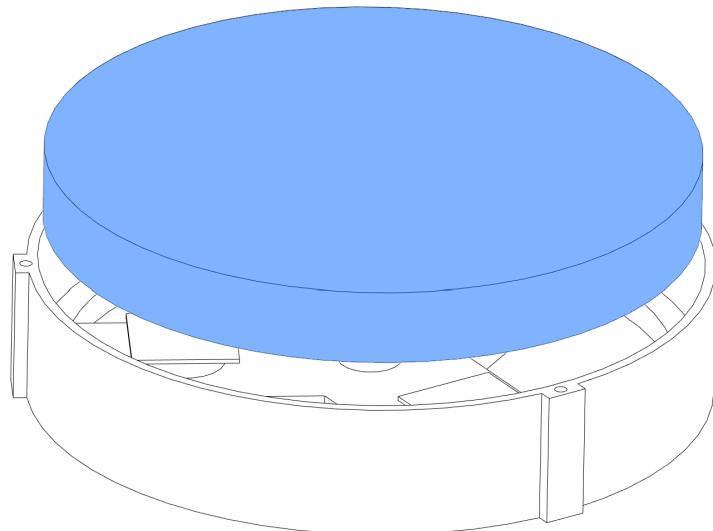
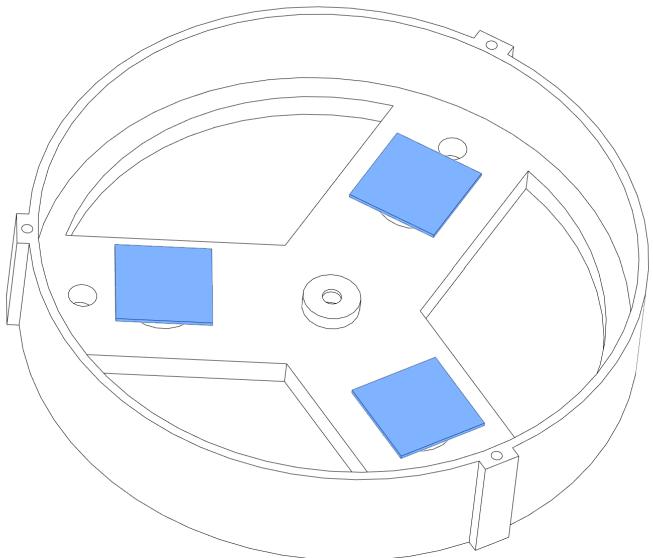
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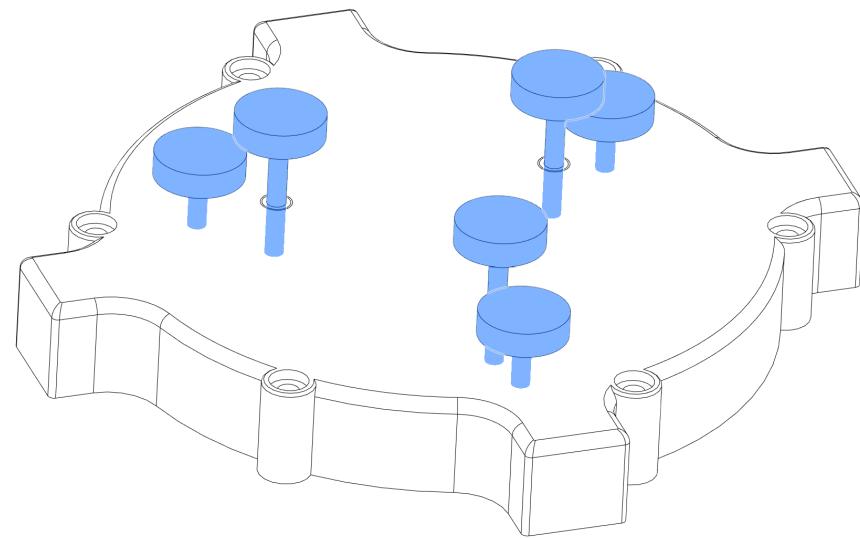
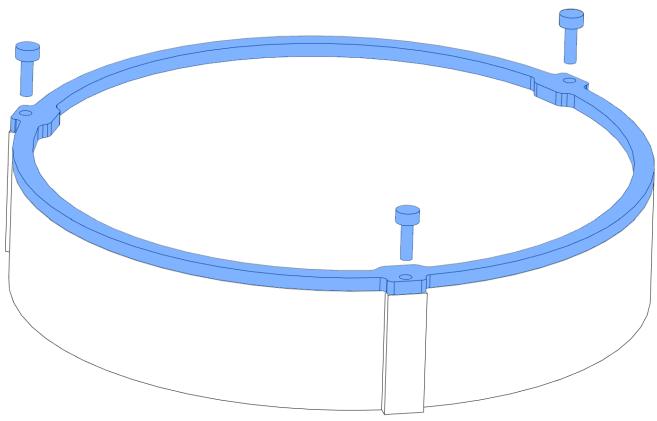
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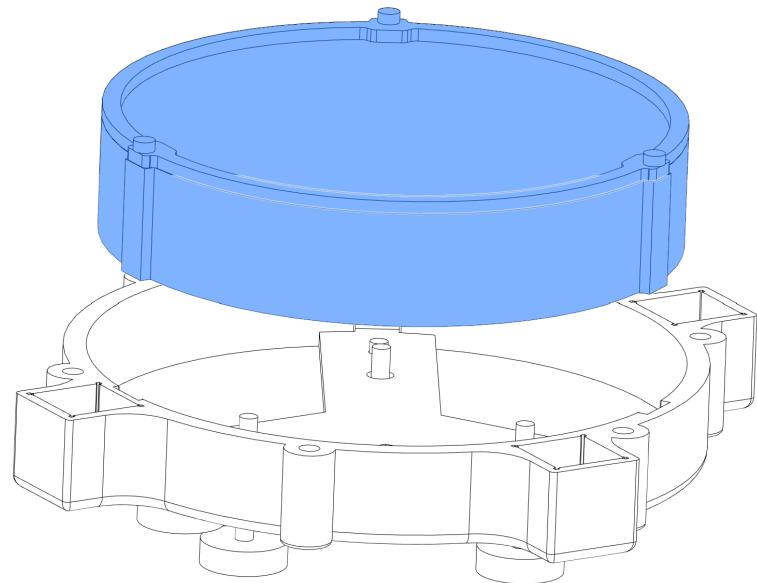
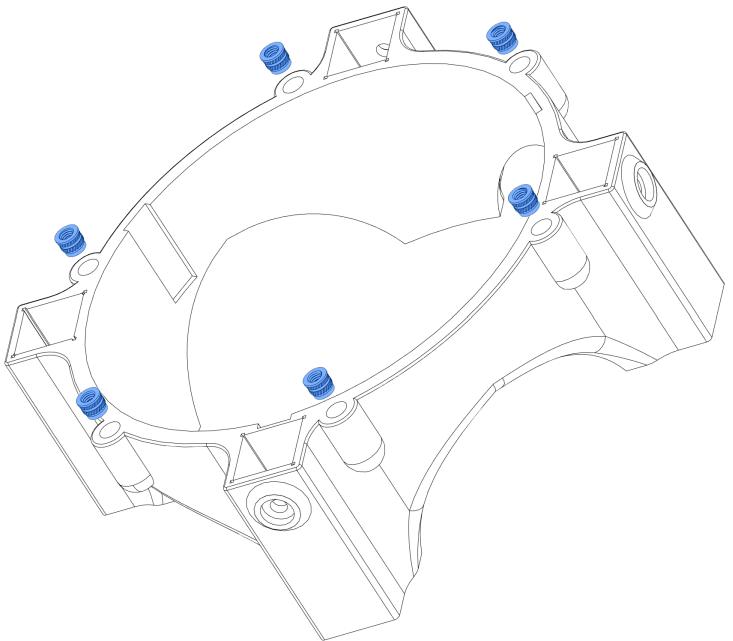
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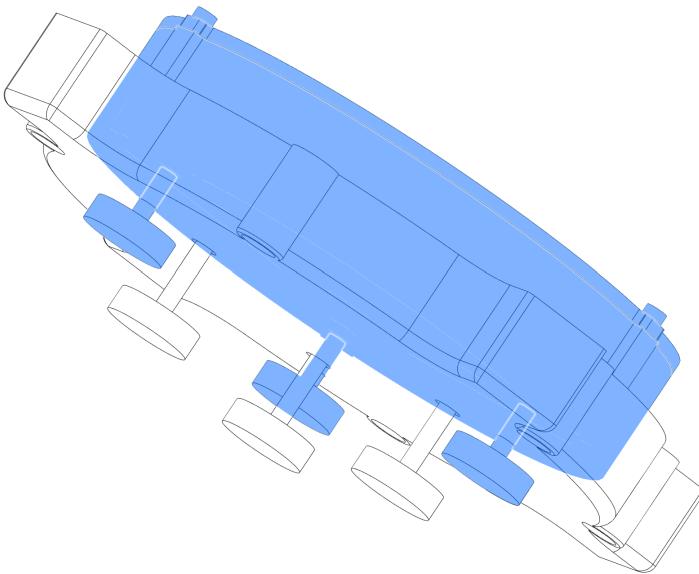
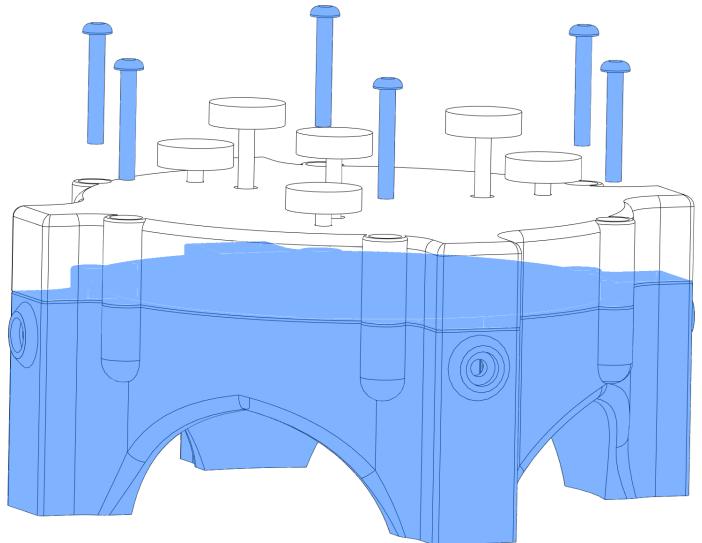
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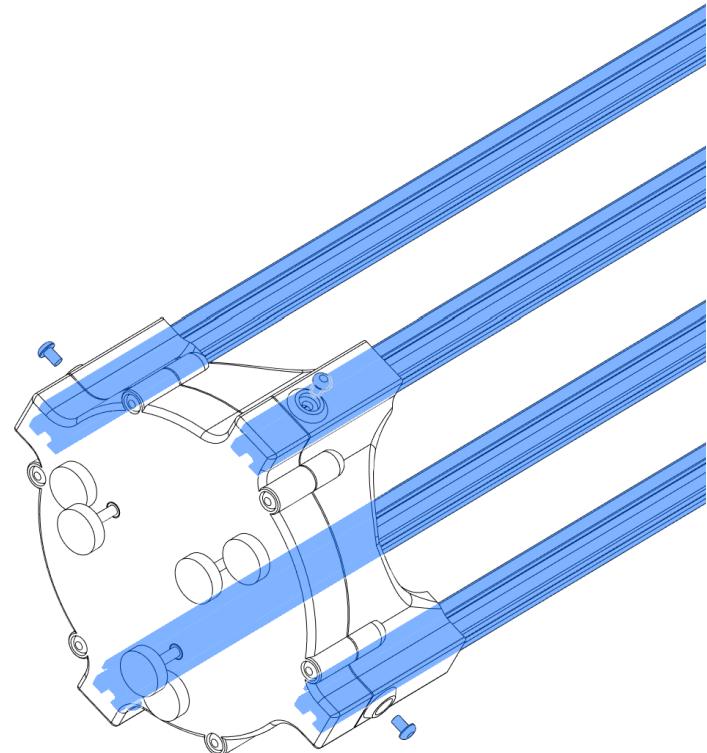
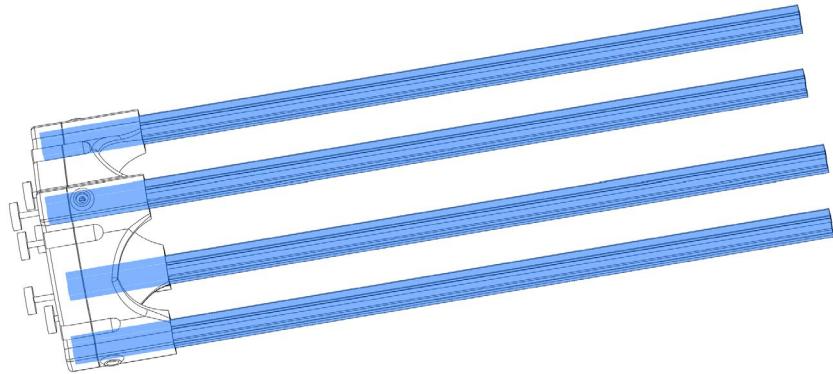
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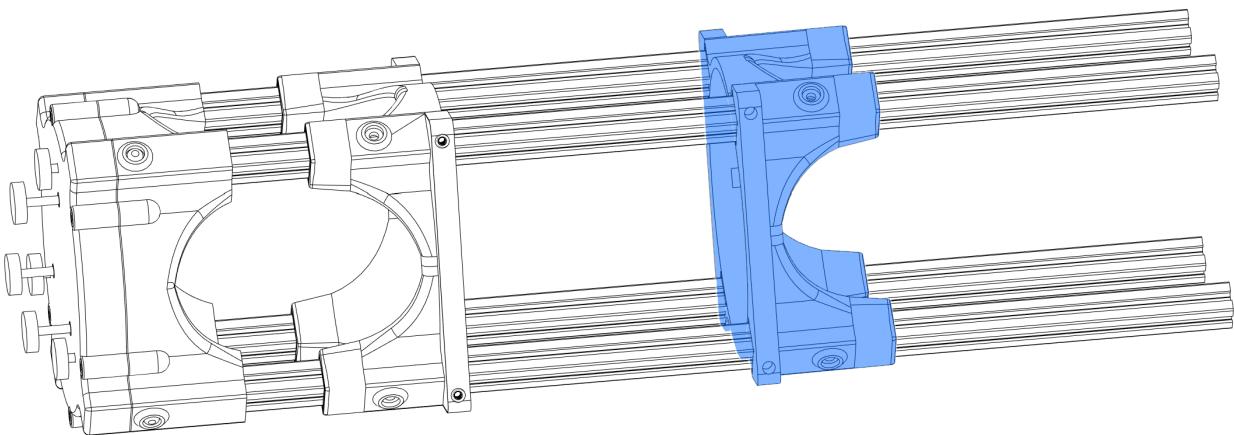
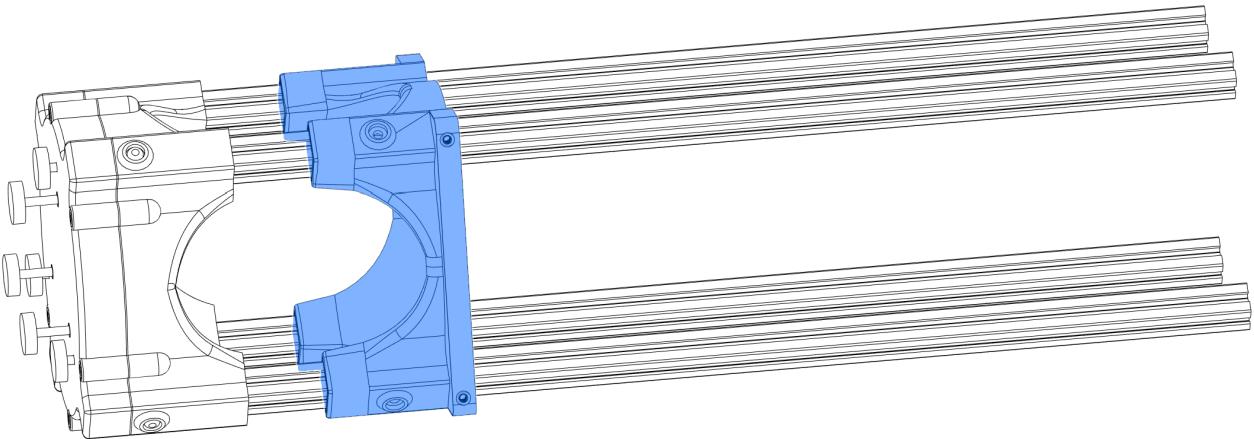
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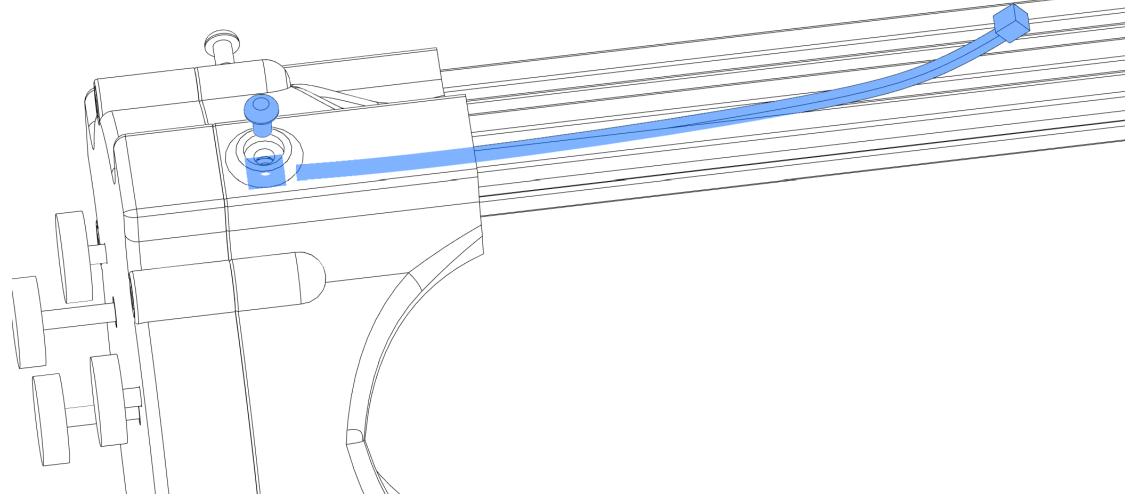
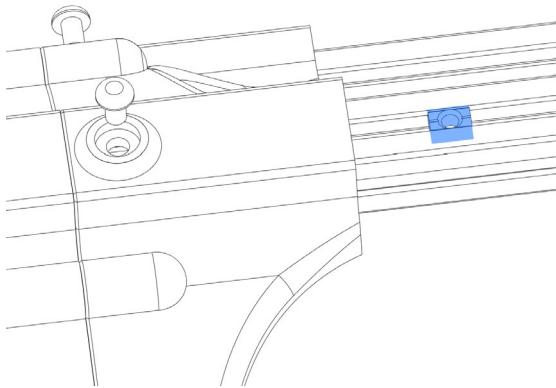
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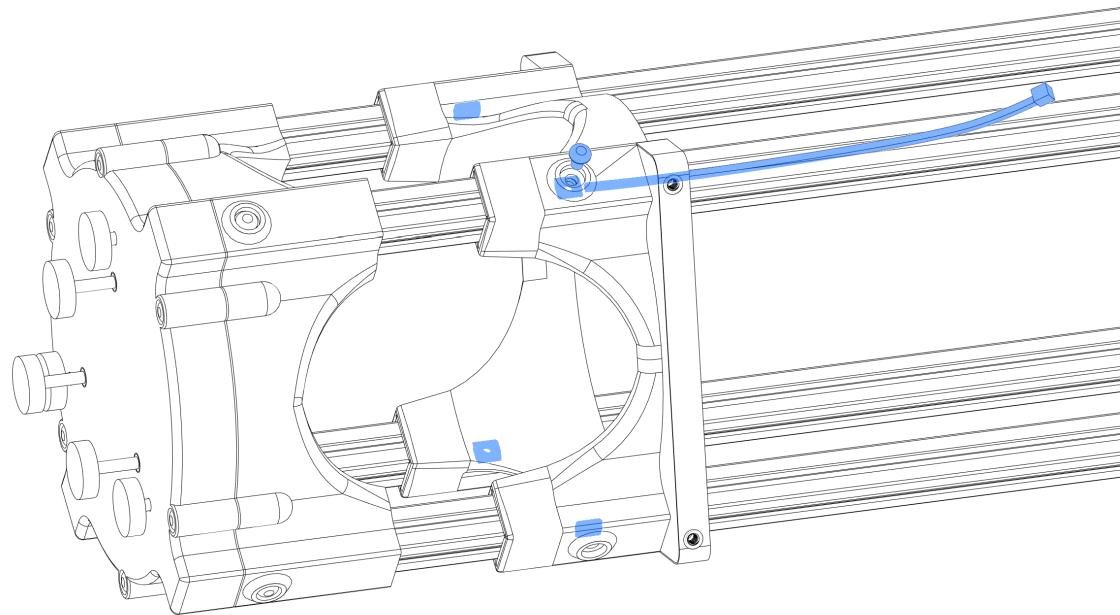
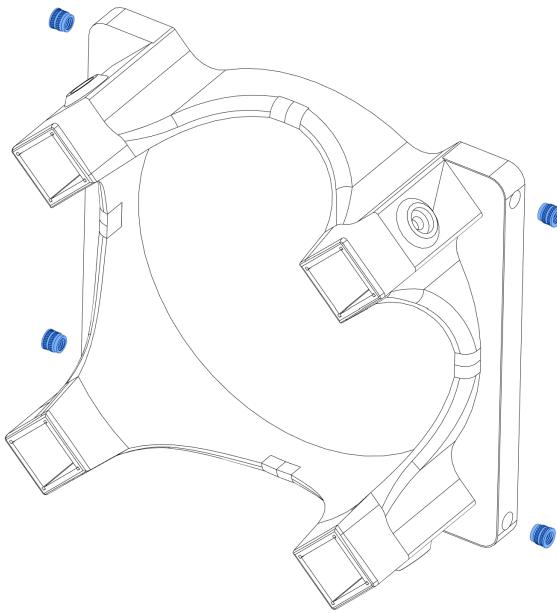
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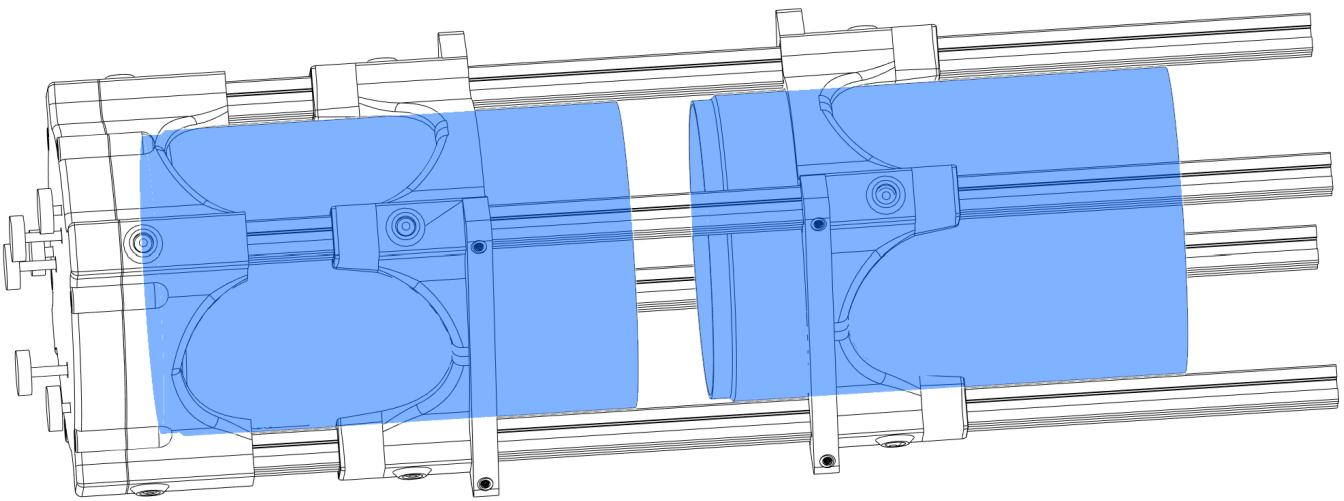
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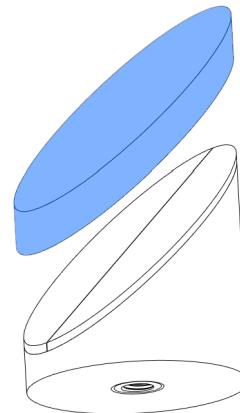
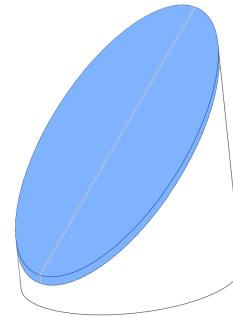
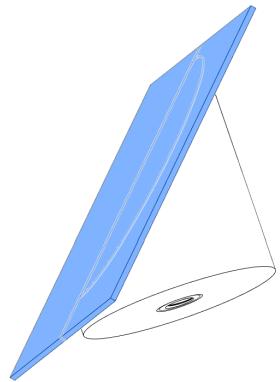
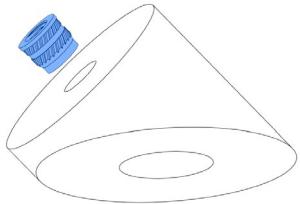
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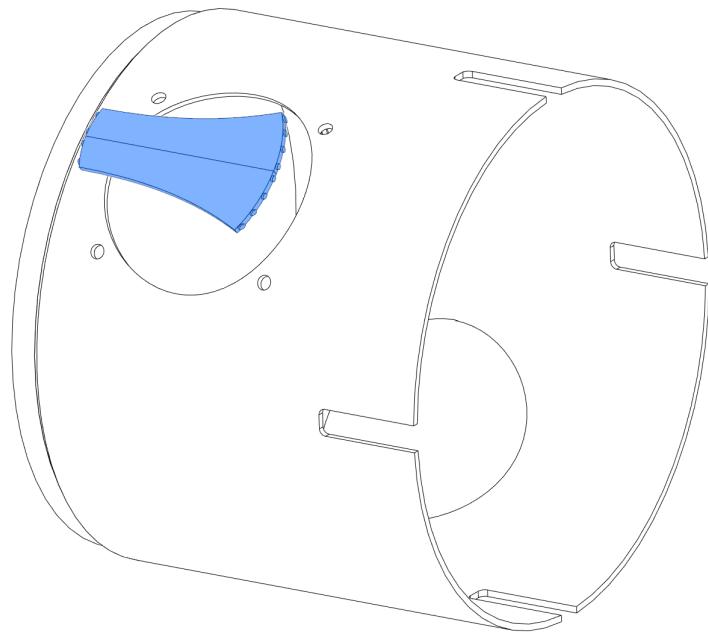
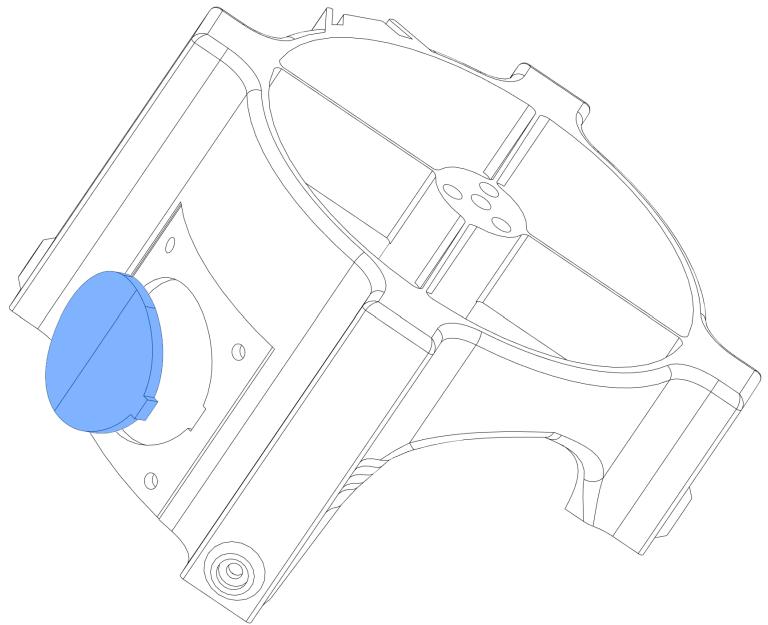
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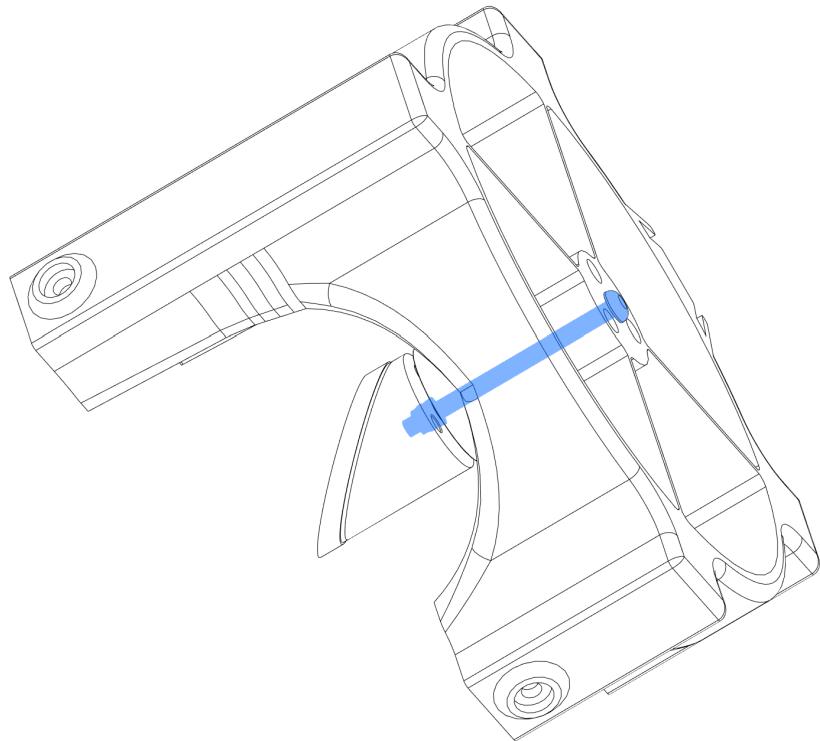
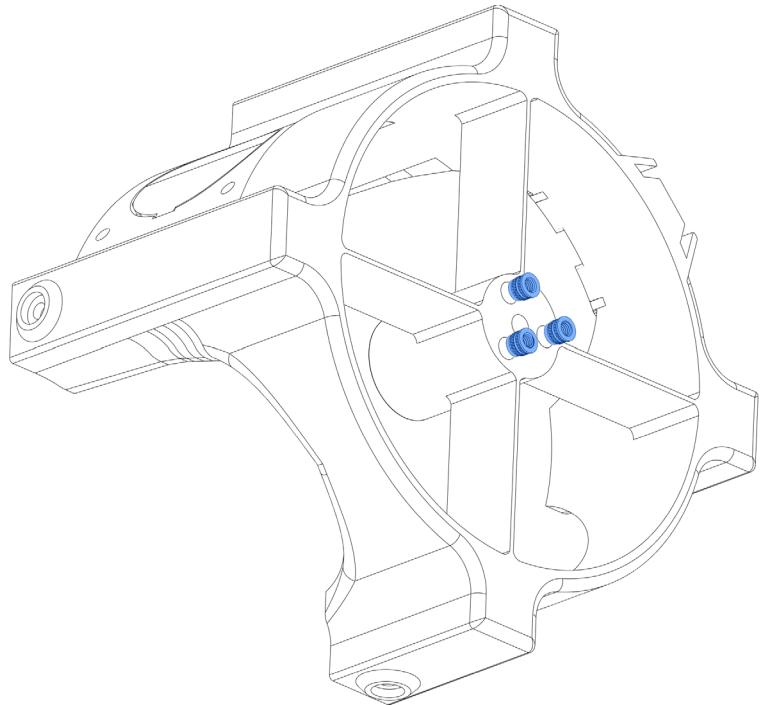
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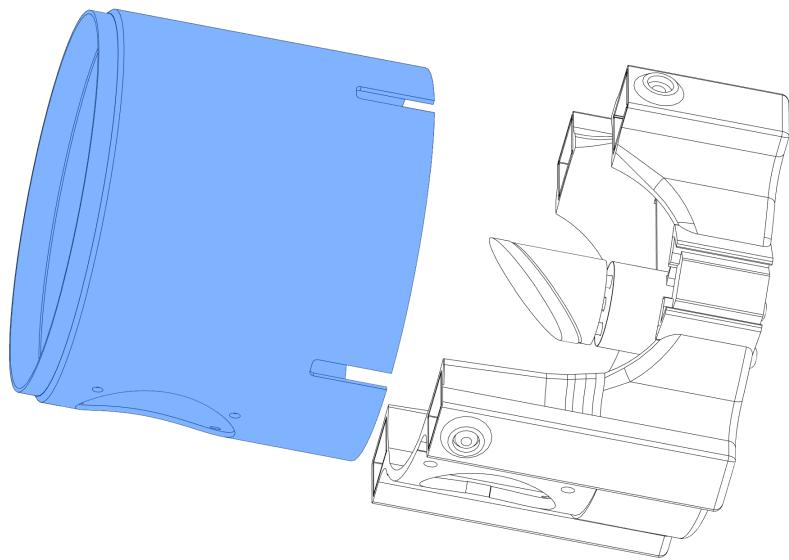
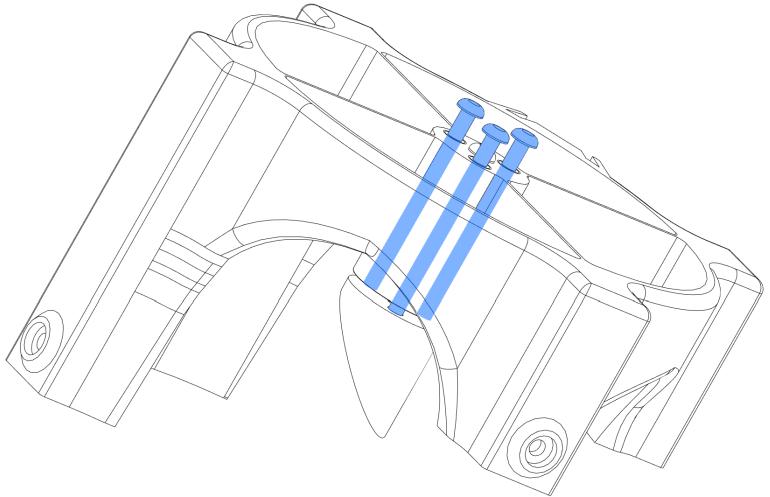
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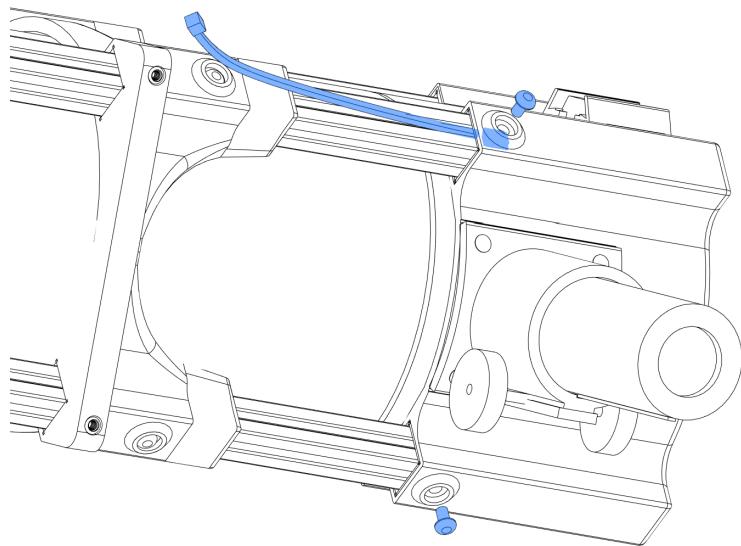
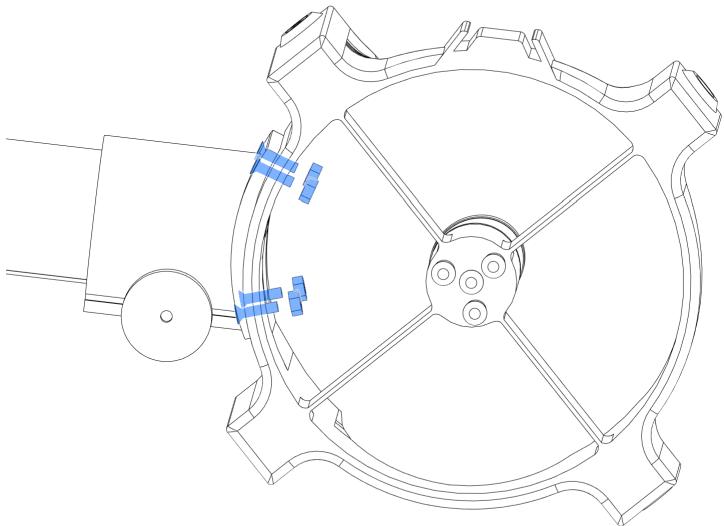
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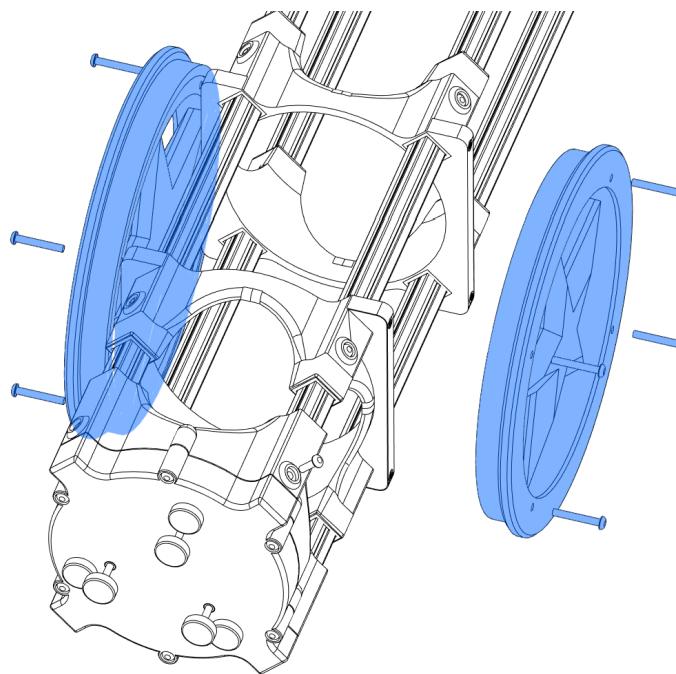
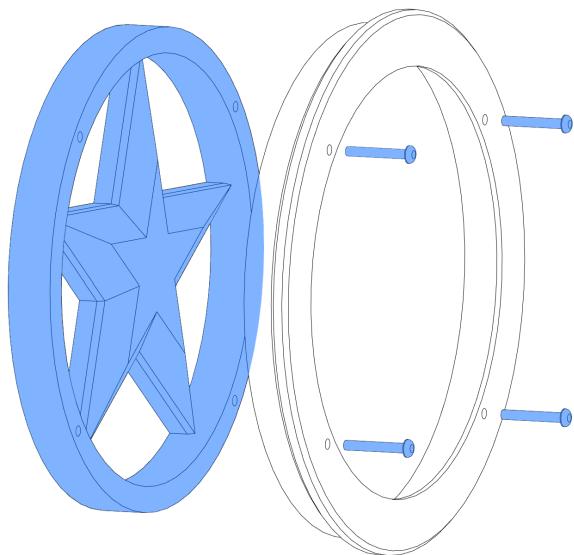
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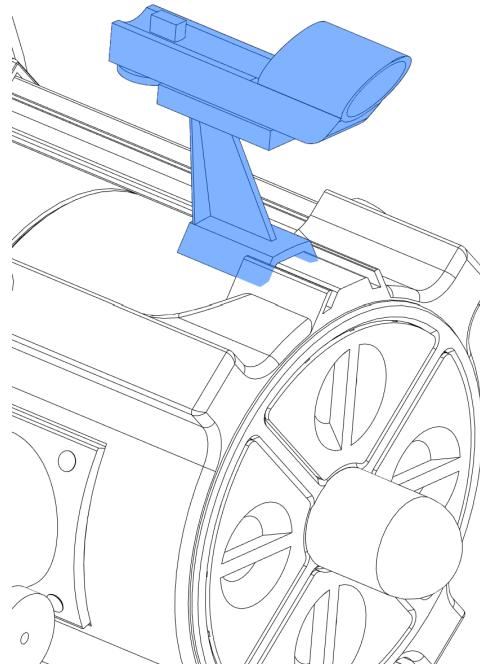
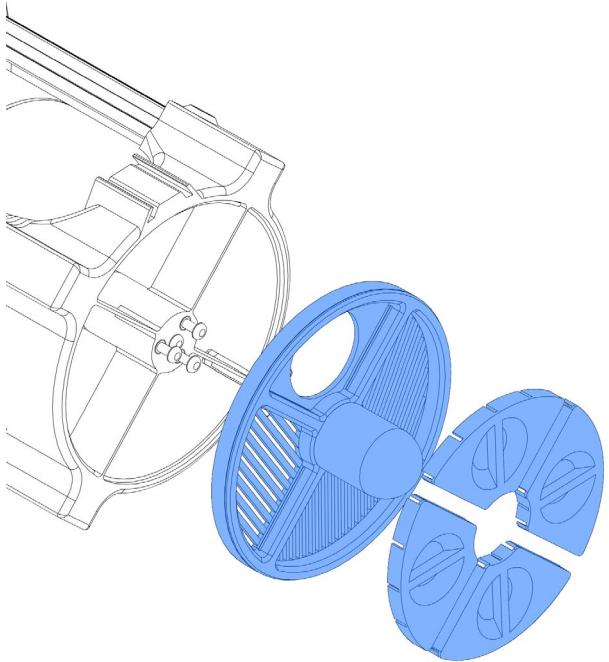
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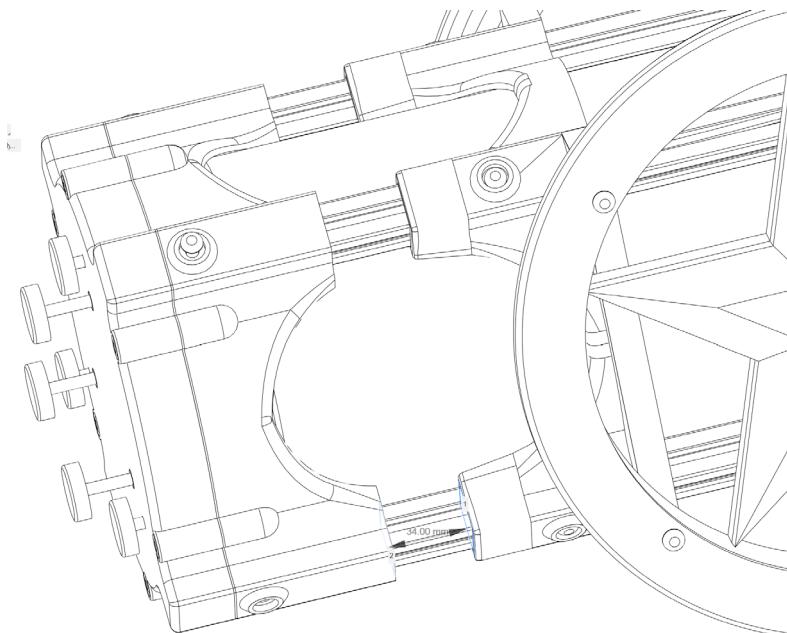
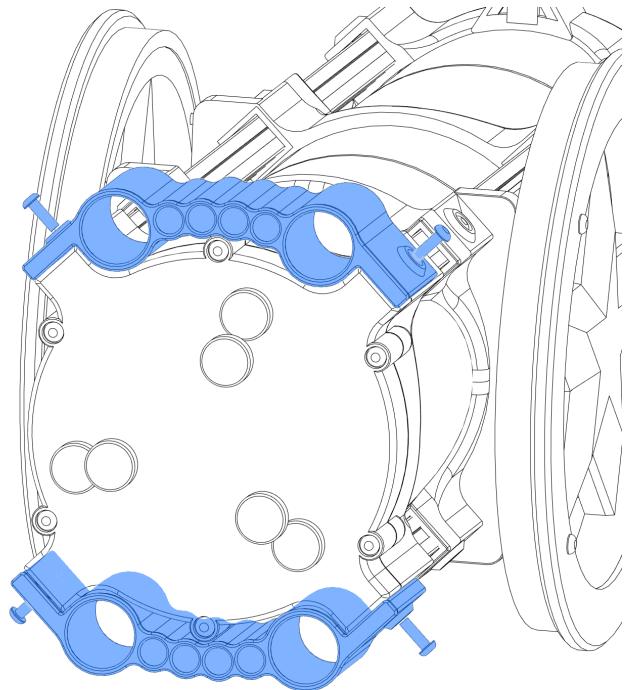
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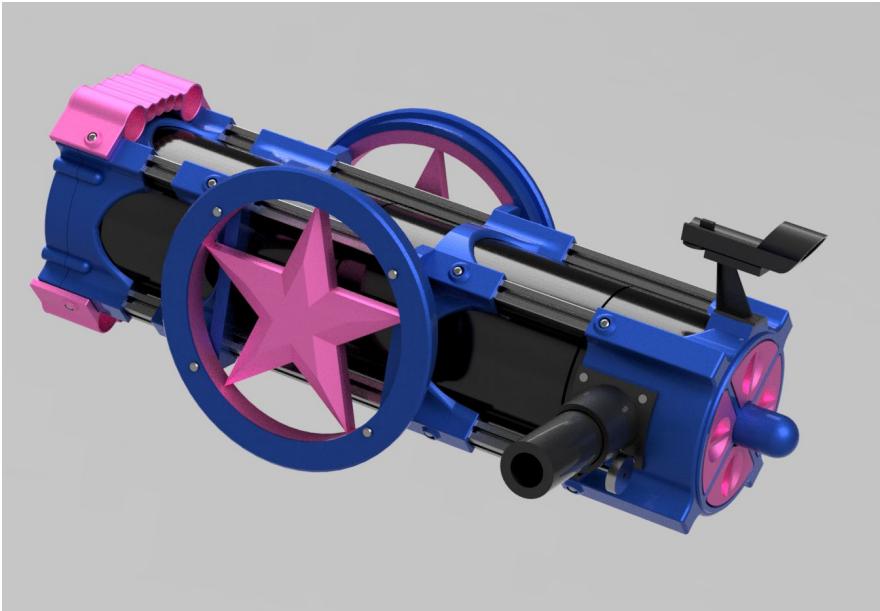
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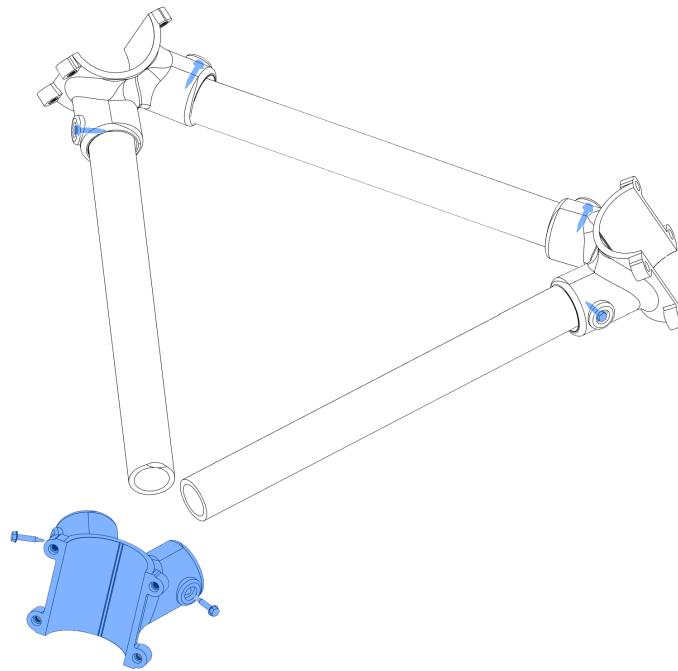
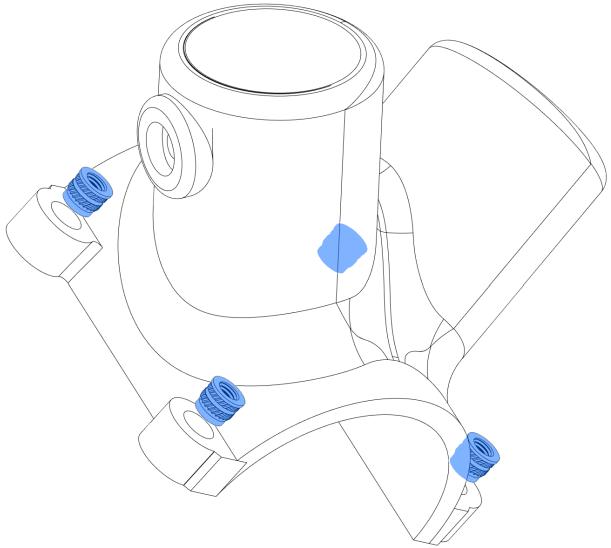
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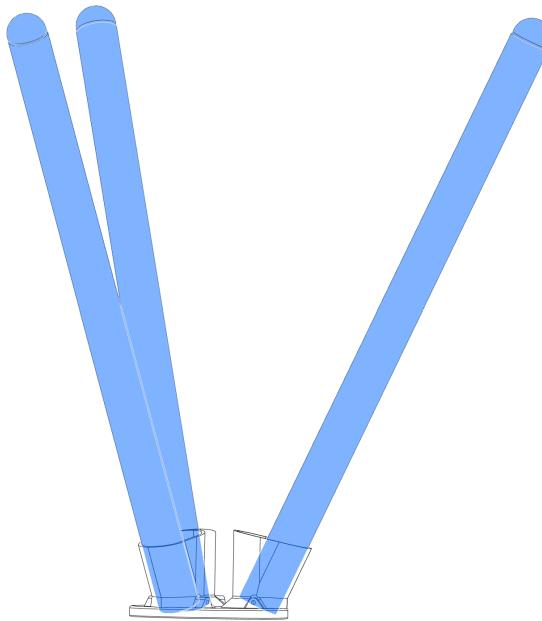
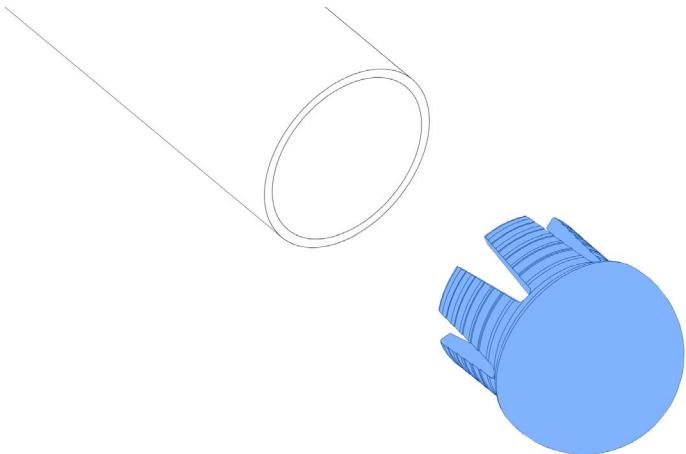
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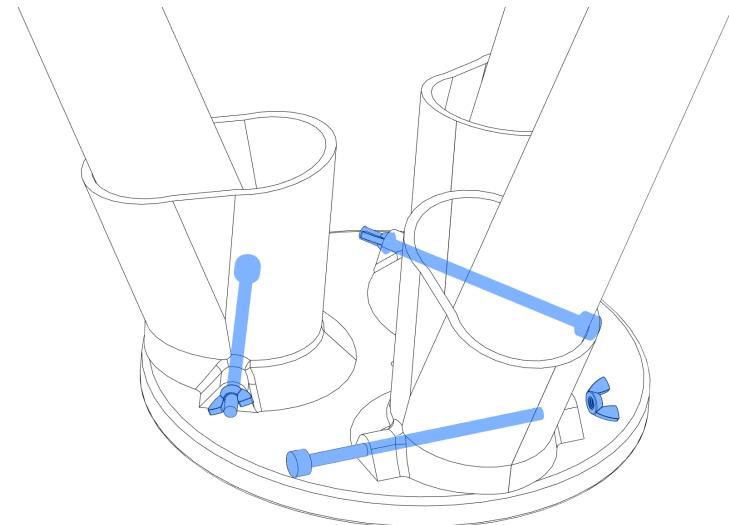
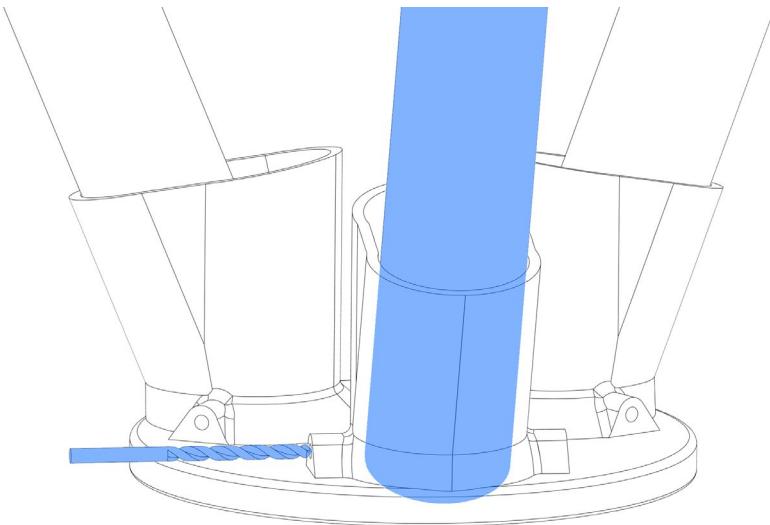
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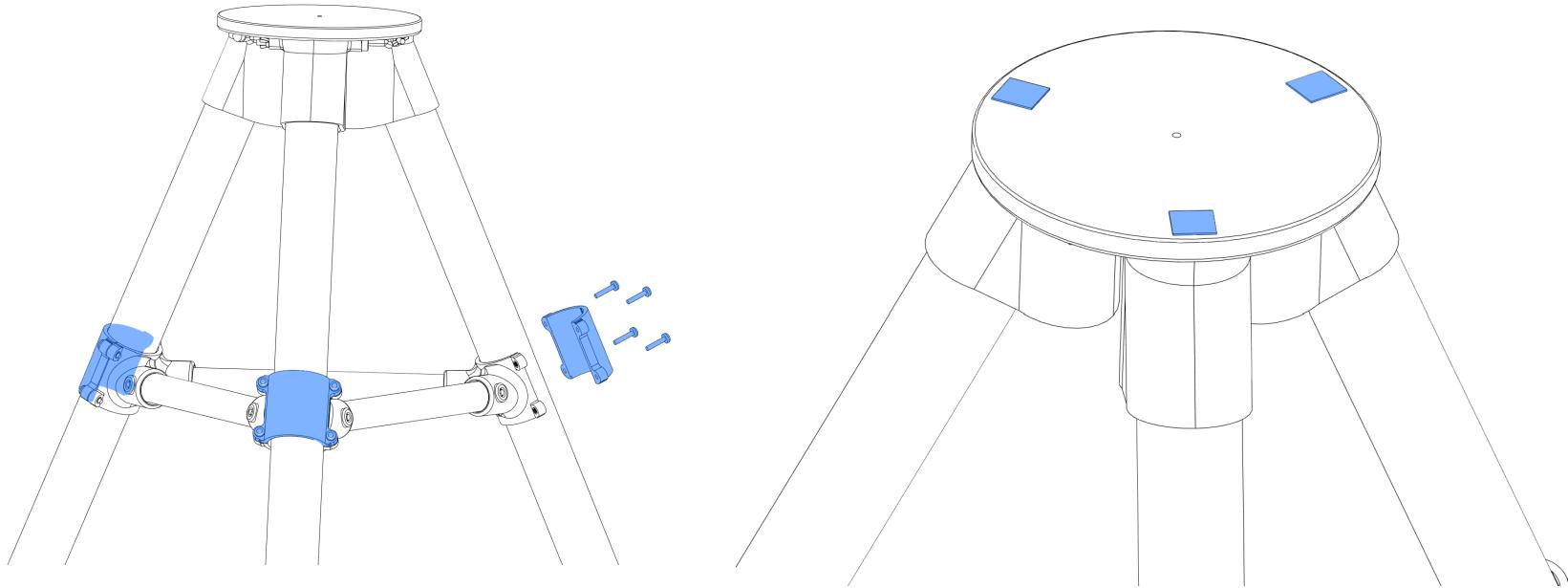
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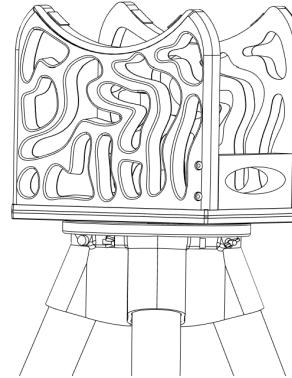
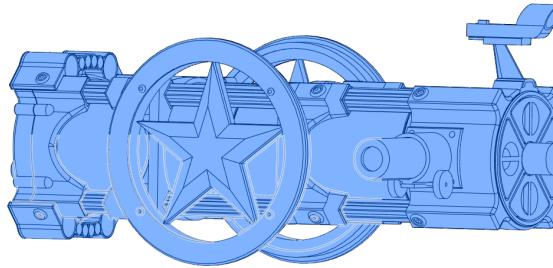
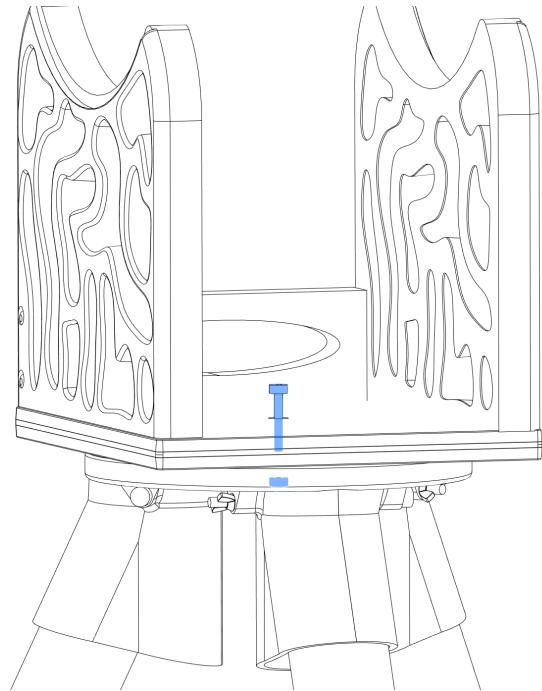
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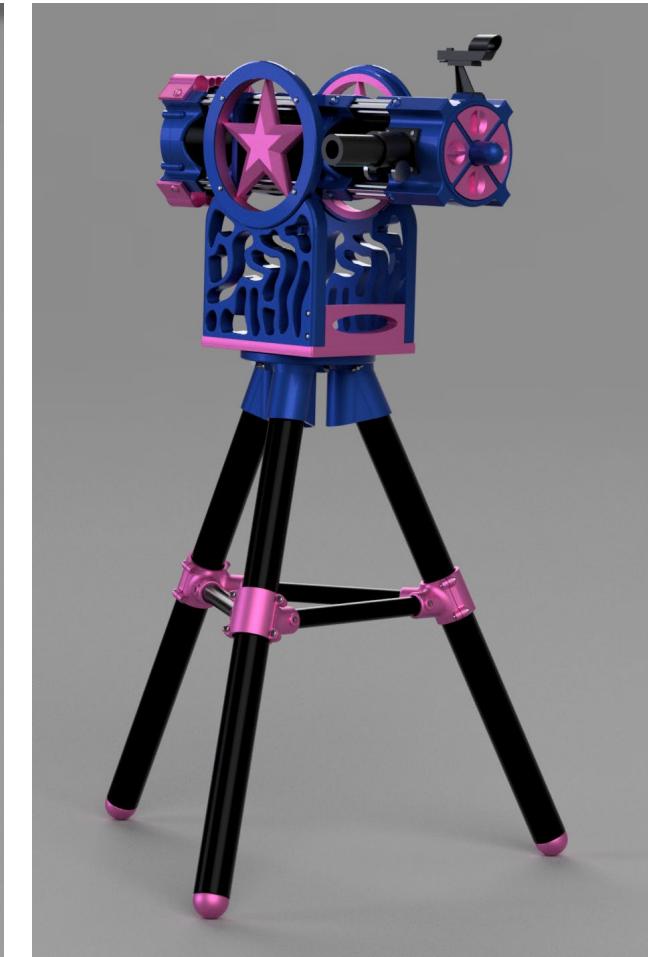


## Assembly



## Assembly





**You Made It!**