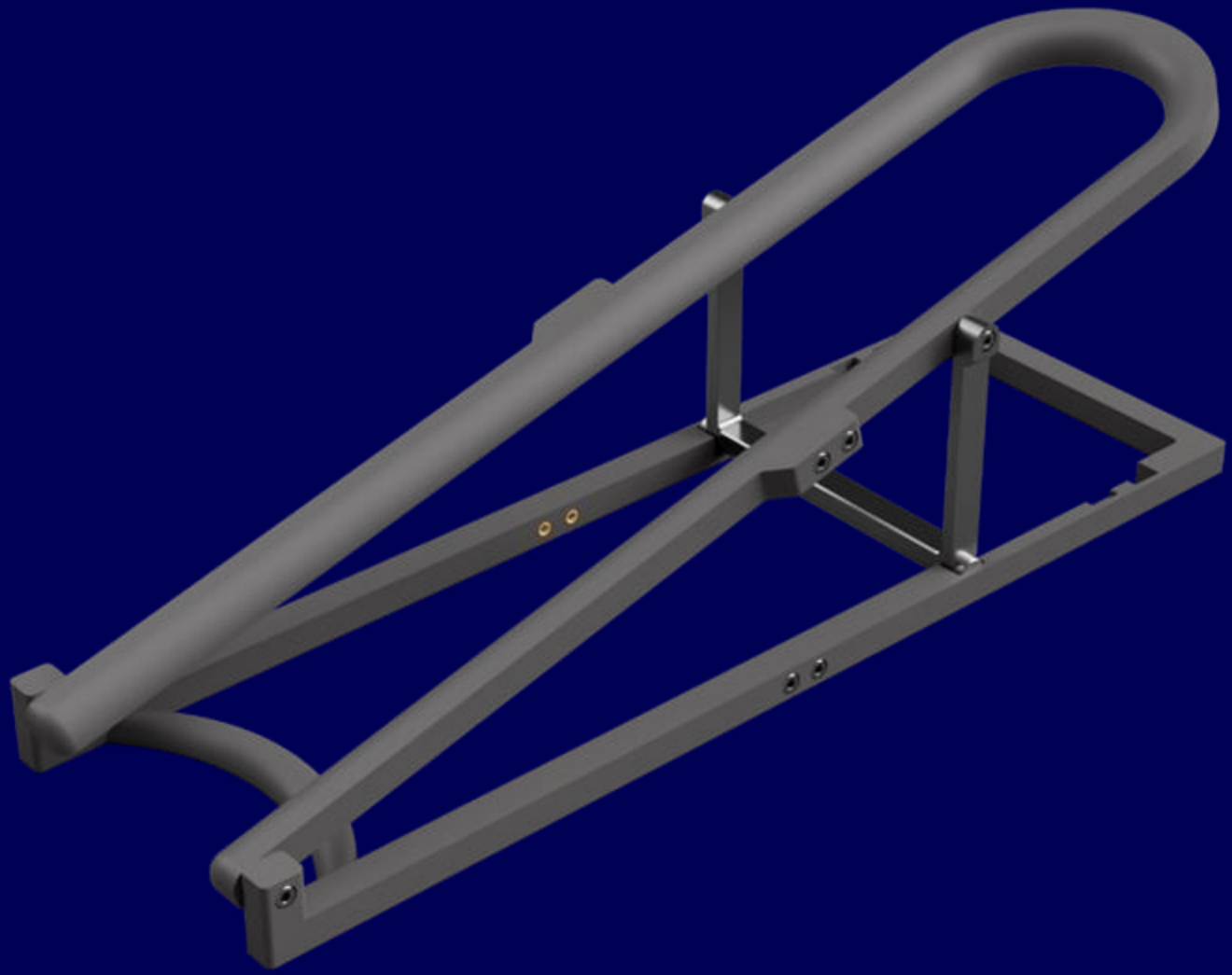
RMIT
RedbackBots



ROBOCUP SOCCER SPL BALL RAMP MANUAL

VERSION 1.0

TABLE OF CONTENTS

CREDITS

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ROBOCUP RAMP

The ramp can be used to roll the standard SPL 100mm diameter ball. It has 3 adjustable angles: 5, 10, and 15. The design makes use of threaded inserts and Socket Head Cap Screws to assemble.

3D PRINTING PROCESS

Fused Deposition Modeling (FDM)

MATERIAL

PLA/PETG/ABS/ASA

LAYER HEIGHT

Recommended: 0.3mm

NOZZLE SIZE

Recommended: 0.6mm

INFILL TYPE

Grid, Gyroid, Honeycomb, Triangle or Cubic

INFILL PERCENTAGE

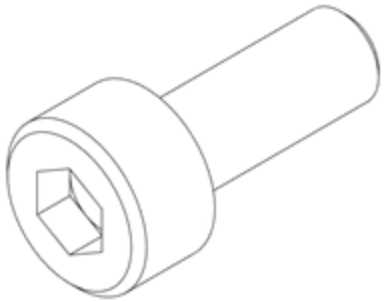
Recommended: 40%

WALL COUNT

Recommended: 3

SOLID TOP/BOTTOM LAYERS

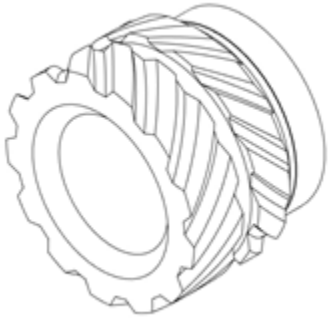
Recommended: 3



SOCKET HEAD CAP SCREW (SHCS)

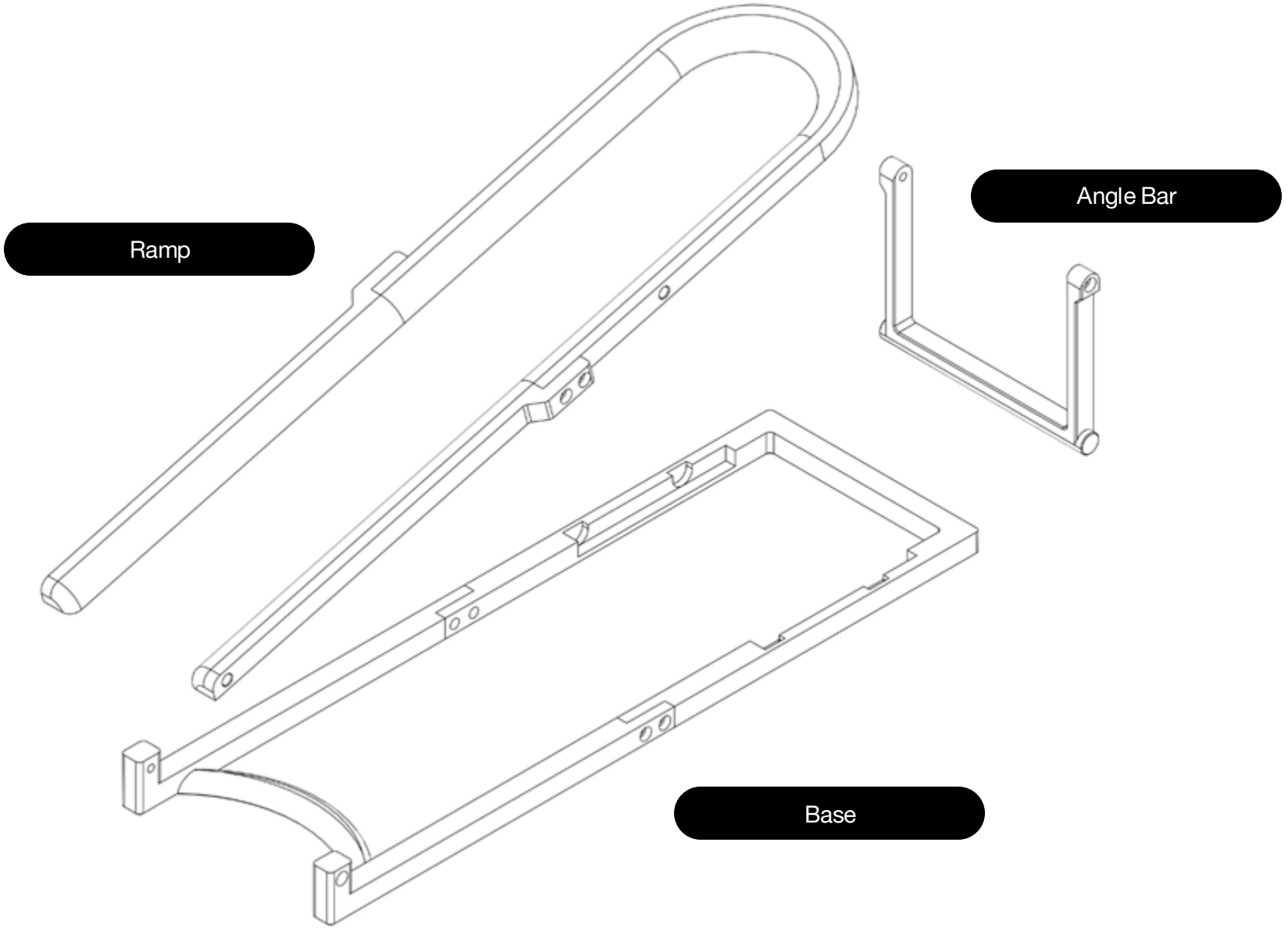
Metric fastener with a cylindrical head and hex drive.

ISO 4762



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.

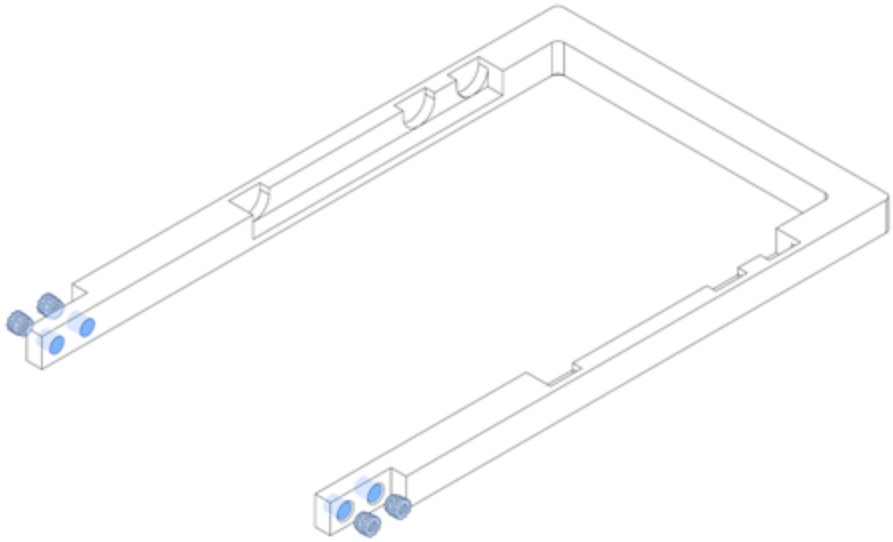

Ramp
Angle Bar
Base

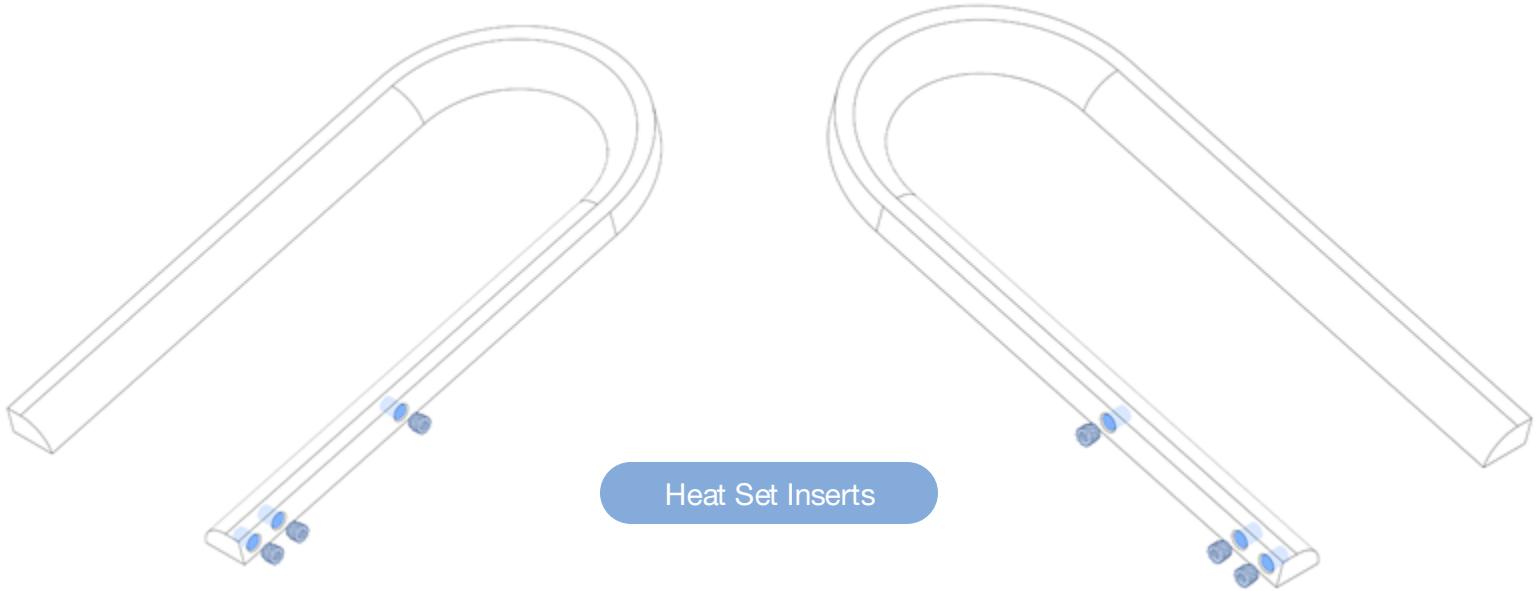
HEAT SET INSERTS

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 BOM for dimensions).

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

Make sure that the insert is flush with the top plastic surface





Heat Set Inserts

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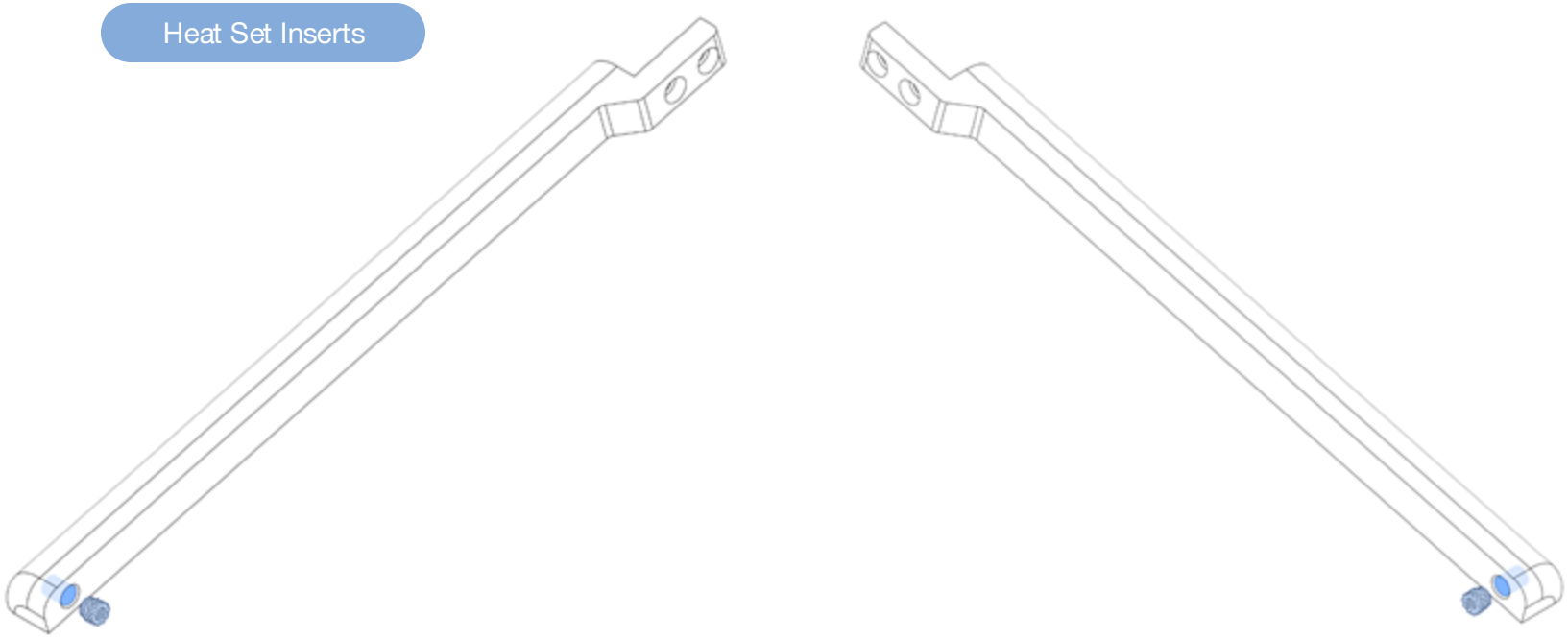
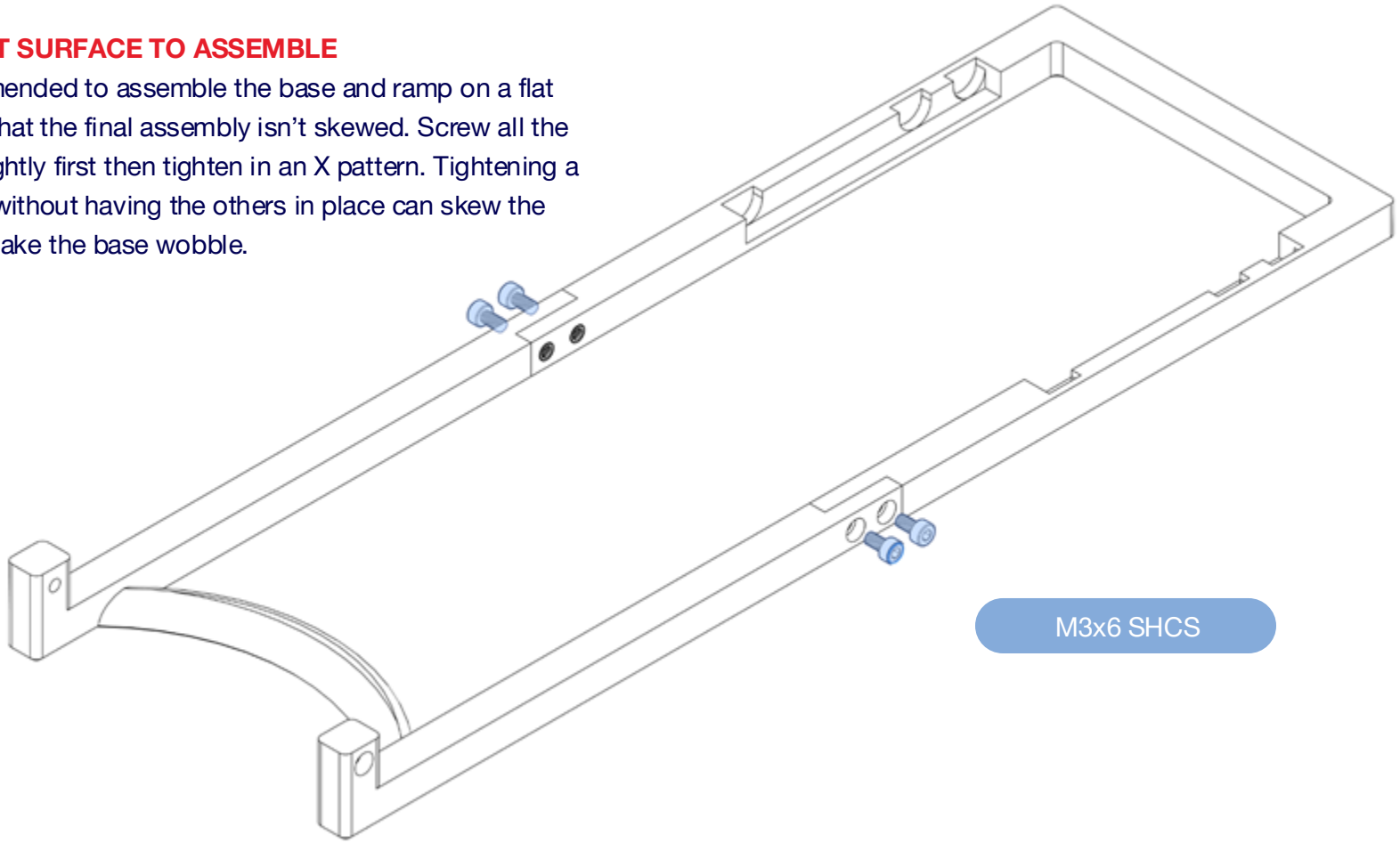
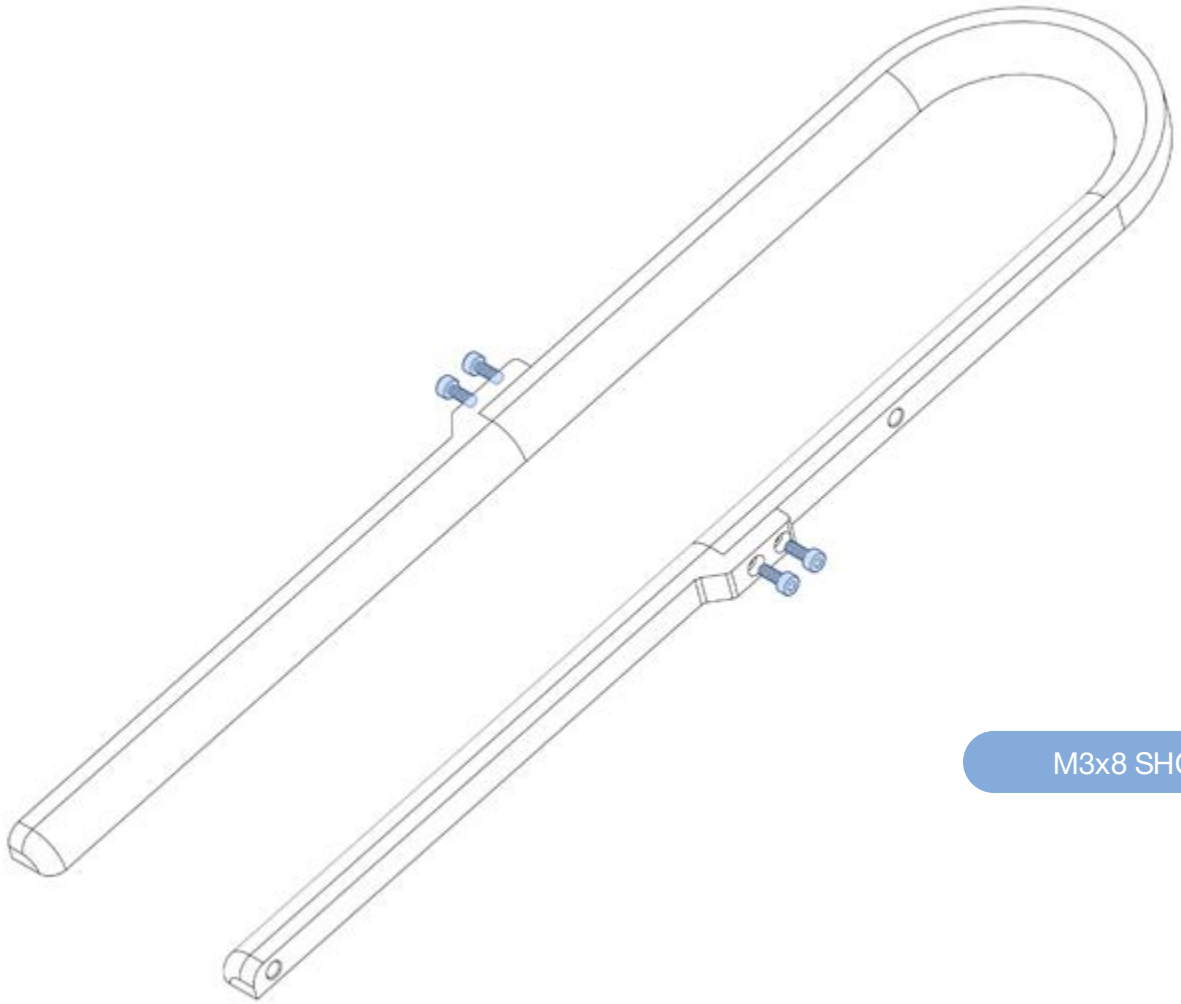


USE A FLAT SURFACE TO ASSEMBLE

It is recommended to assemble the base and ramp on a flat surface so that the final assembly isn't skewed. Screw all the screws in lightly first then tighten in an X pattern. Tightening a screw fully without having the others in place can skew the parts and make the base wobble.

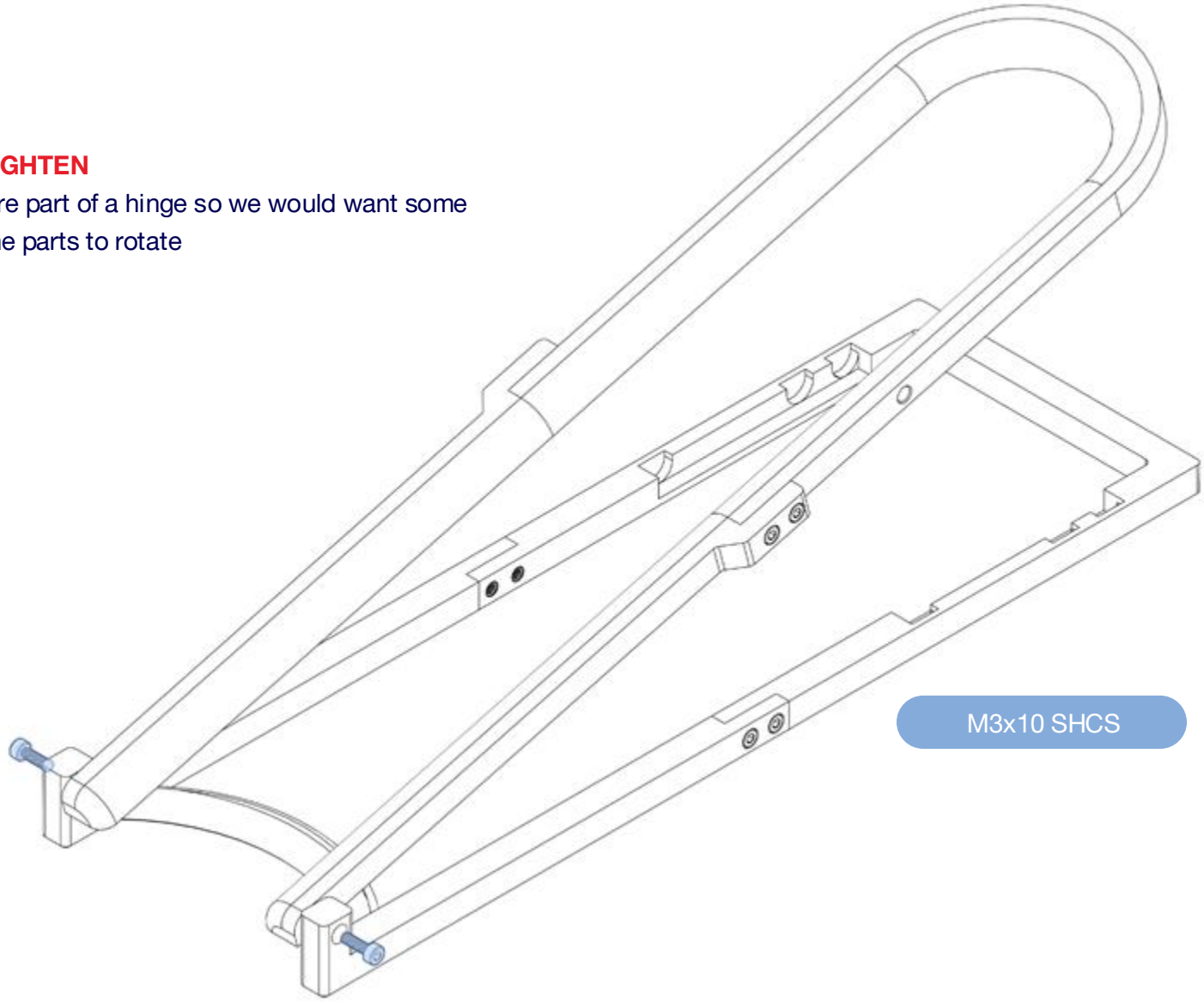




M3x8 SHCS

DON'T OVERTIGHTEN

These screws are part of a hinge so we would want some looseness for the parts to rotate



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