

# pHBOT

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## 1 GENERAL INFORMATION

### DESIGNER INSTITUTION

Aniket Chitre Cambridge Centre for Advanced Research and Education in Singapore  
Jayce Cheng Institute of Materials Research and Engineering, A\*STAR, Singapore

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## 2 DESCRIPTION

This is the assembly guide for the pHBOT: self-driving titration robot.

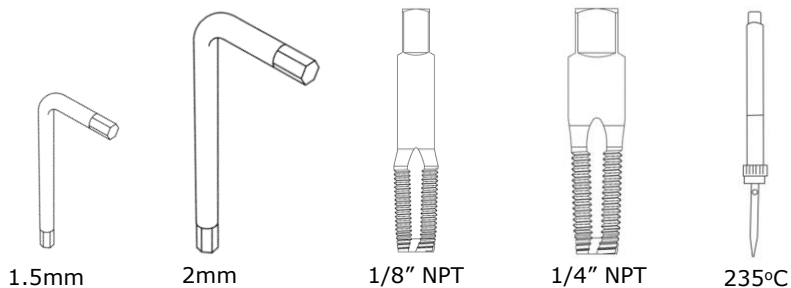
\*Labware not included

\*Wiring and tubing not shown

## 3 RESOURCES

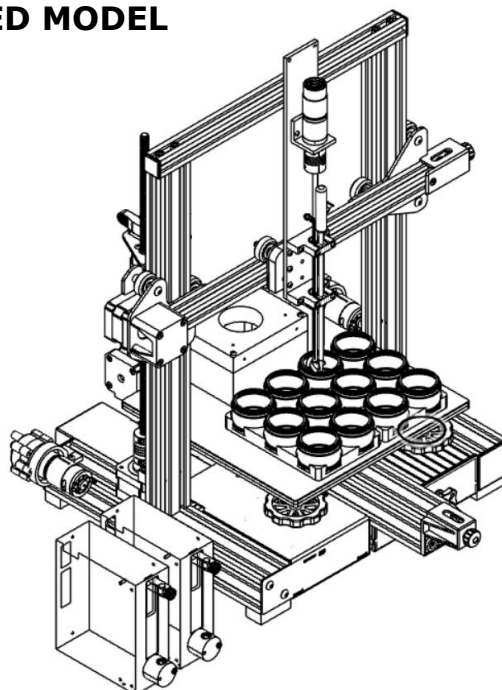
- Access to FDM 3D printing
  - Access to SLA, DLP or equivalent resin 3D printing
  - Basic soldering
- 

## 4 TOOLS REQUIRED



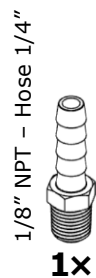
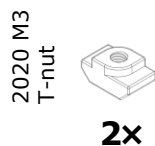
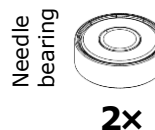
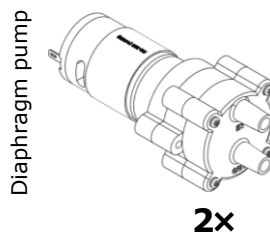
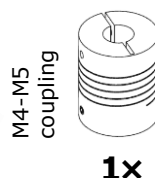
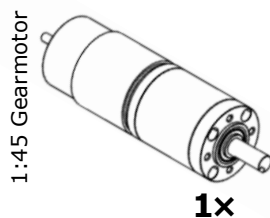
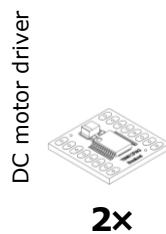
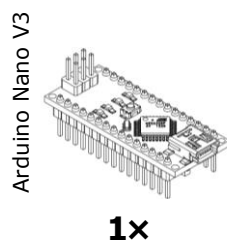
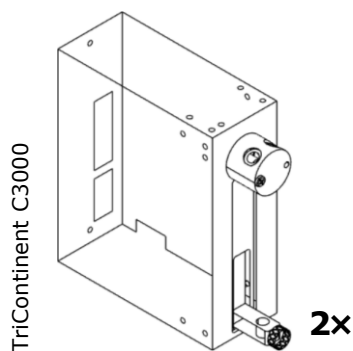
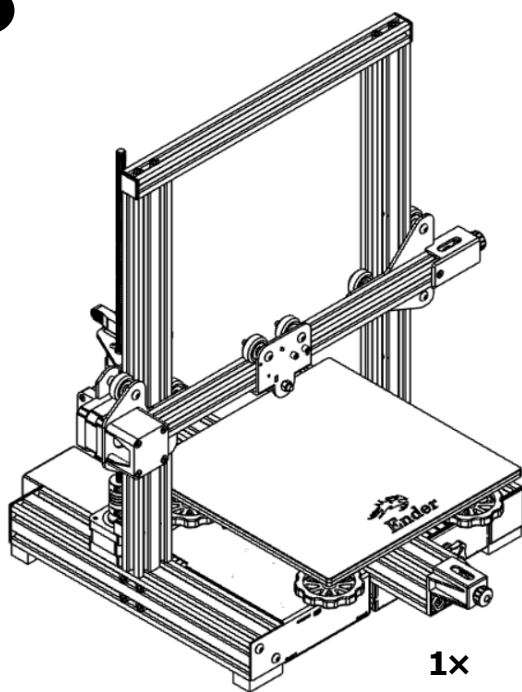
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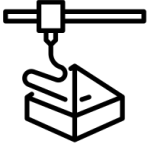
## 5 ASSEMBLED MODEL





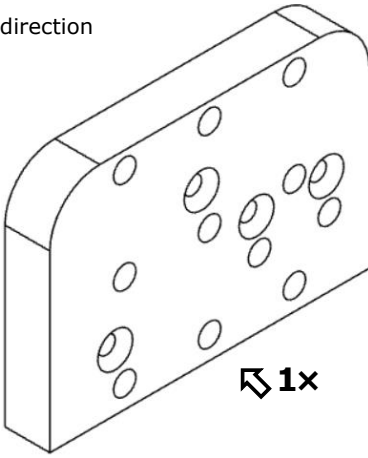
Creality Ender 3 Pro/V2, extruder assembly removed





↑ Print direction

Ender 3 adapter plate.stl



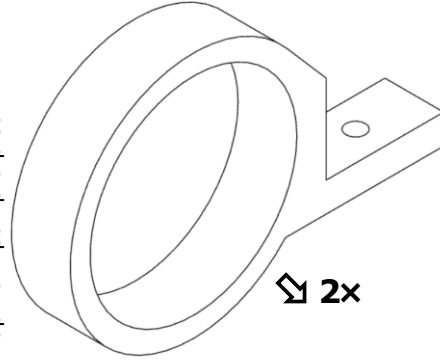
↗ 1x

Probe assembly frame.stl



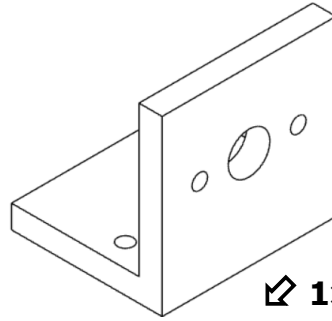
↗ 1x

Diaphragm pump clip.stl



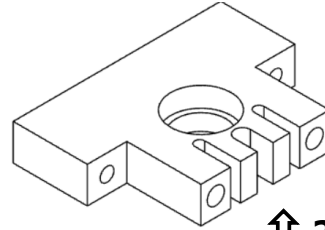
↗ 2x

Motor mount.stl



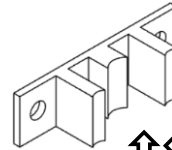
↗ 1x

Bearing mount.stl



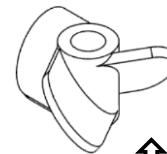
↑ 2x

Clip.stl

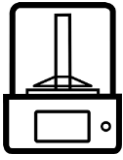


↑ ↗ 2x

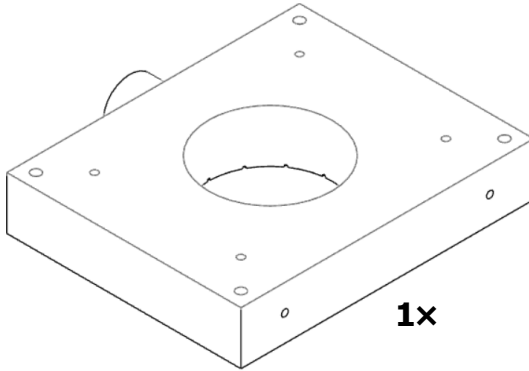
Propeller.stl



↑ 2x

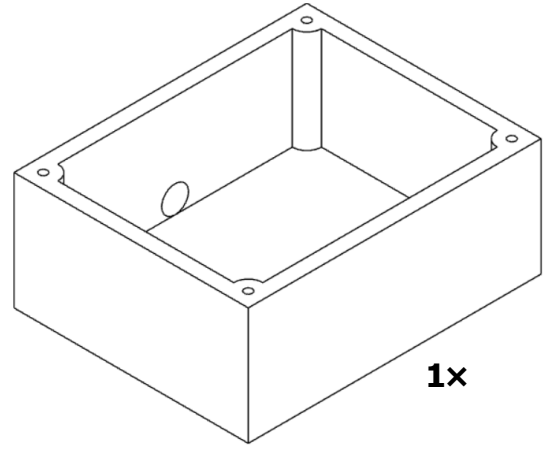


Wash station top.stl



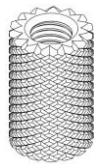
**1x**

Wash station base.stl



**1x**

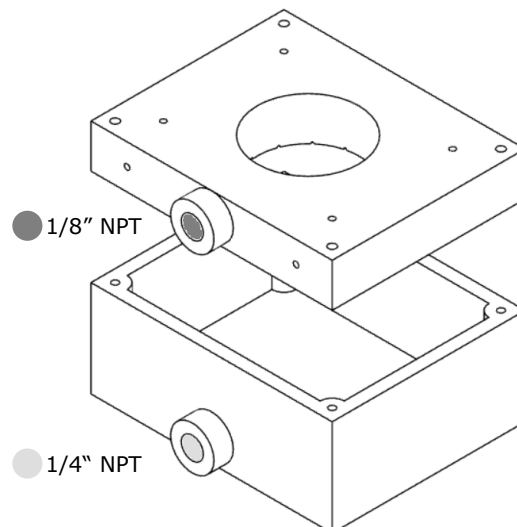
Luer lock adapter.stl



**2x**

# 1 Tap

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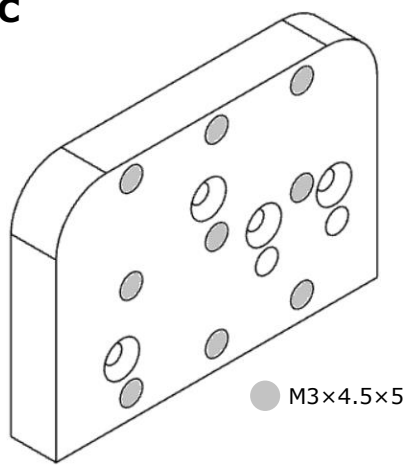


● 1/8" NPT

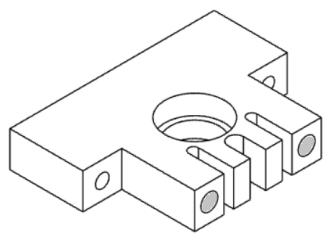
● 1/4" NPT

# 2 Heat Insert

  
235°C

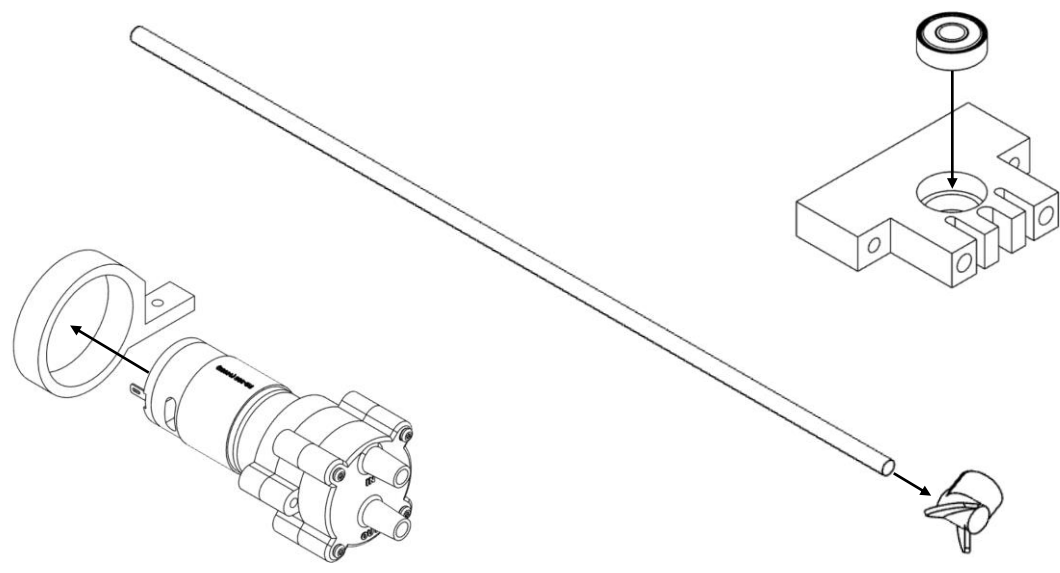


● M2.5×3.5×3



● M2.5×3.5×3

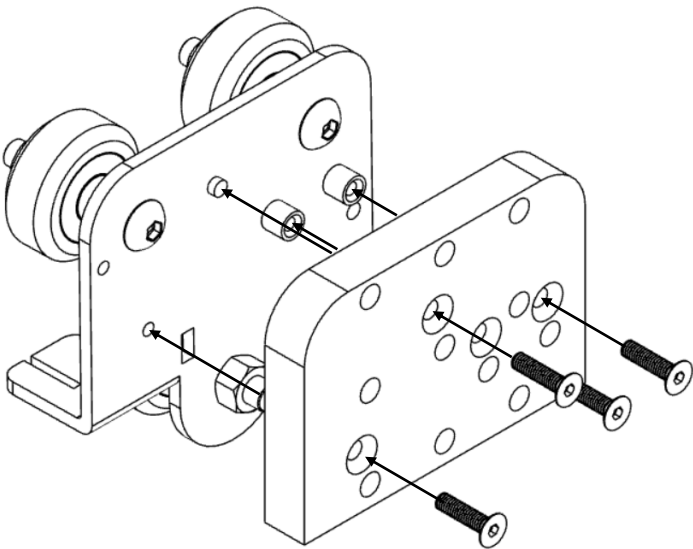
# 3 Friction Insert



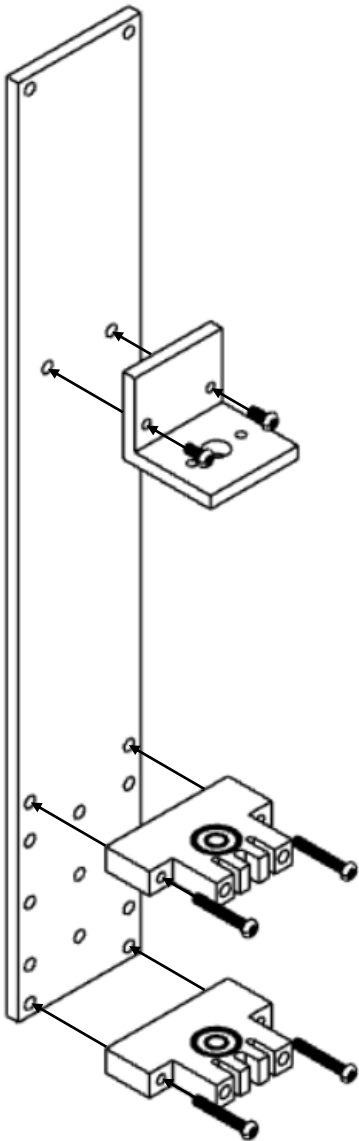
# 4 Assembly

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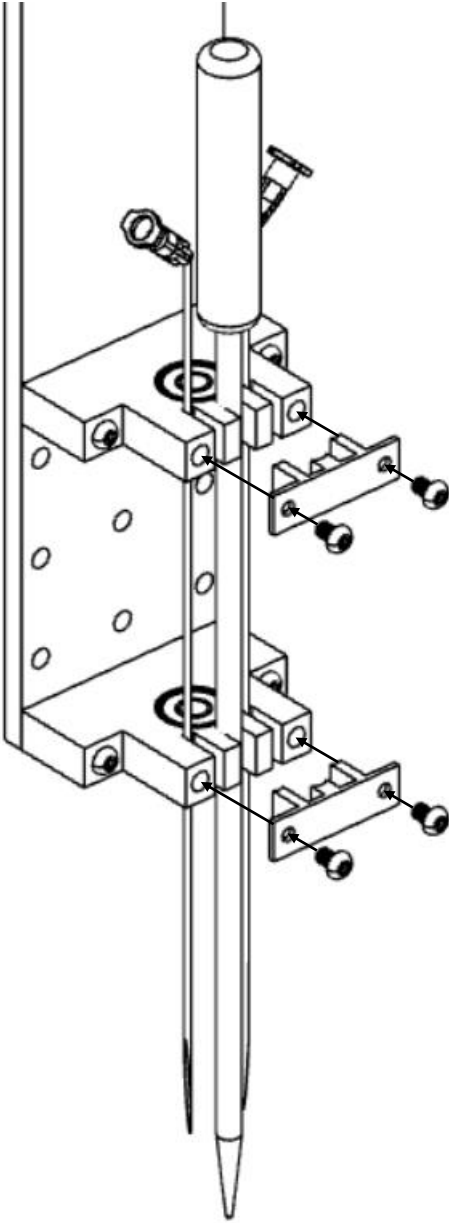
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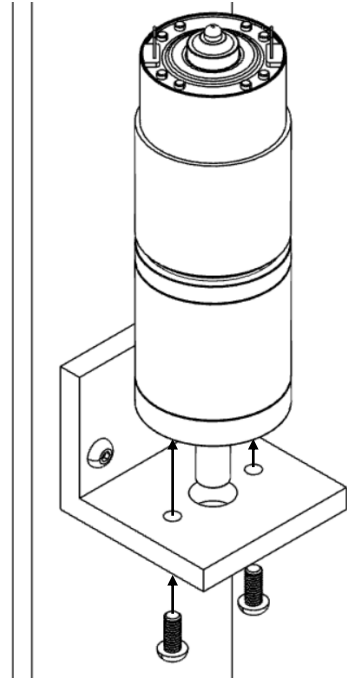
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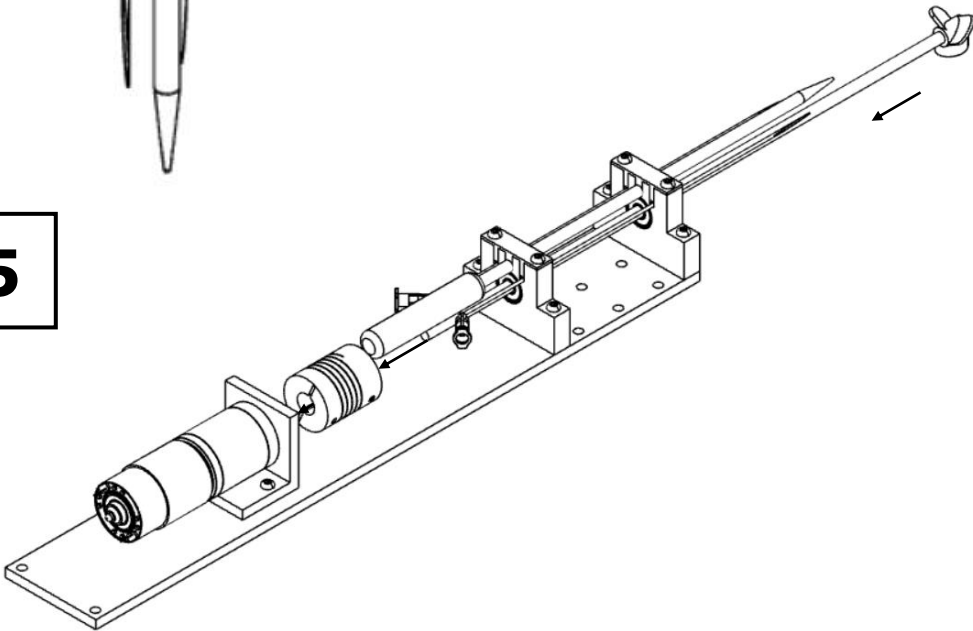
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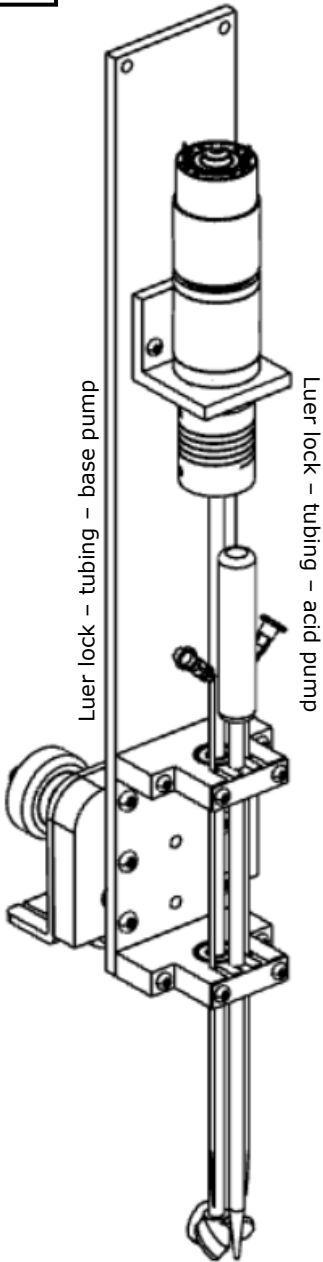
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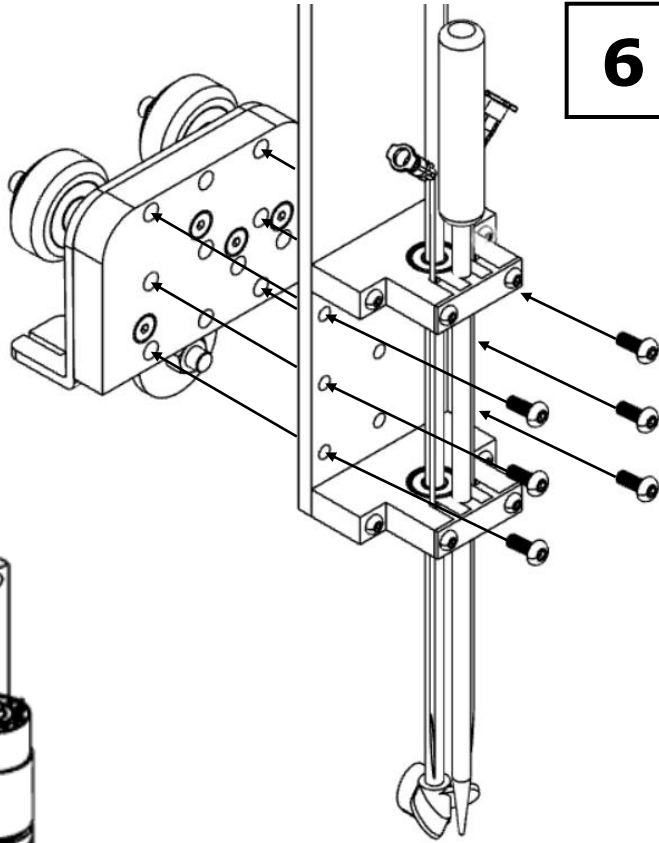
**5**



**7**

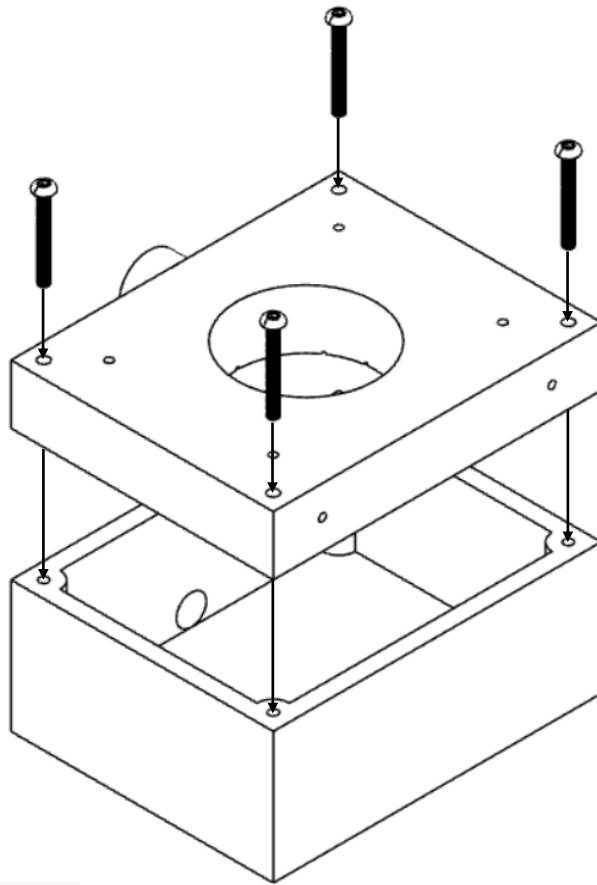


**6**

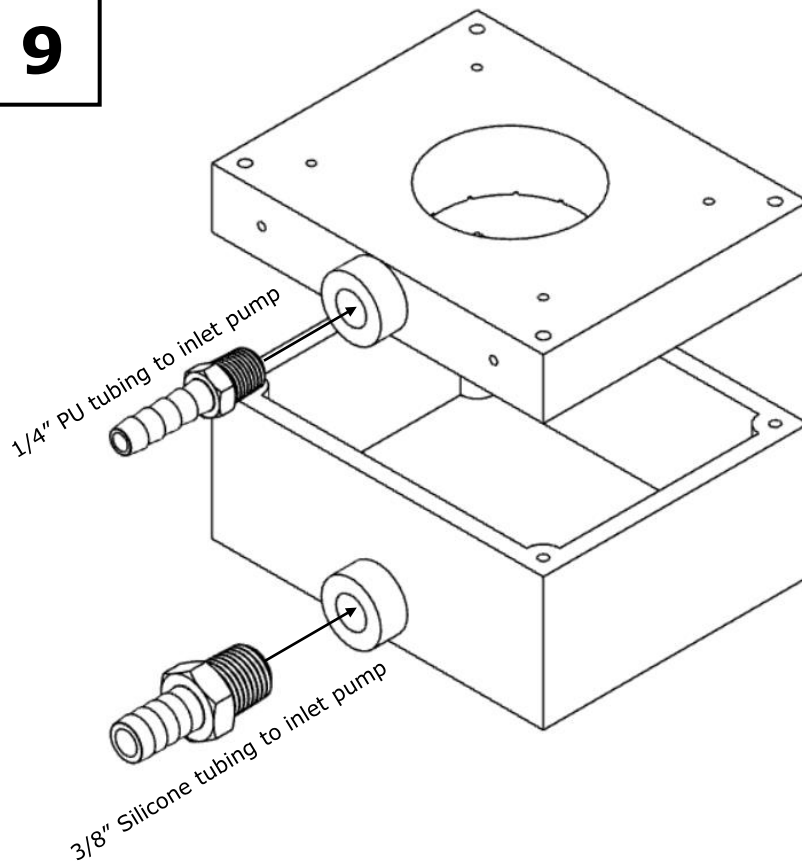


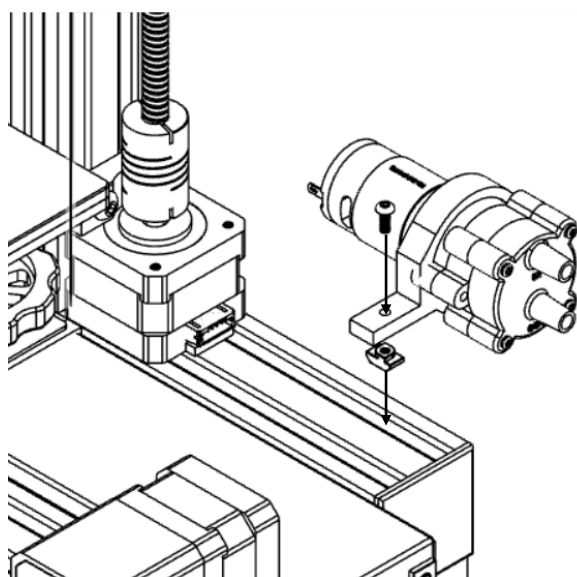


8



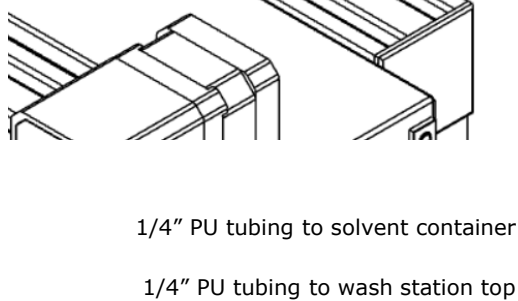
9





3/8" Silicone tubing to wash station base

3/8" Silicone tubing to waste



1/4" PU tubing to solvent container

1/4" PU tubing to wash station top

