

ENGR 3421: Robotics I

Mechanical Design

10/03/2023



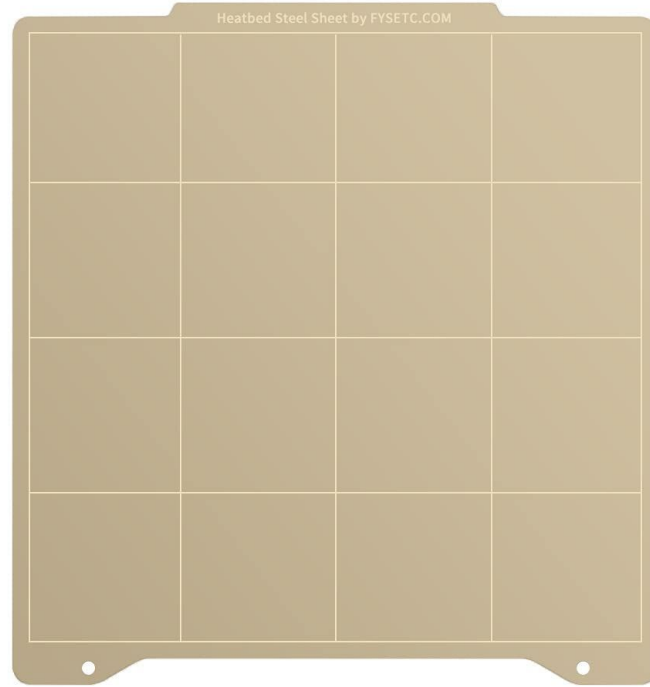
FreeCAD

- Website: <https://www.freecad.org/>
- Learning Resources:
 - <https://www.youtube.com/@MangoJellySolutions/featured>
 - https://wiki.freecad.org/Getting_started

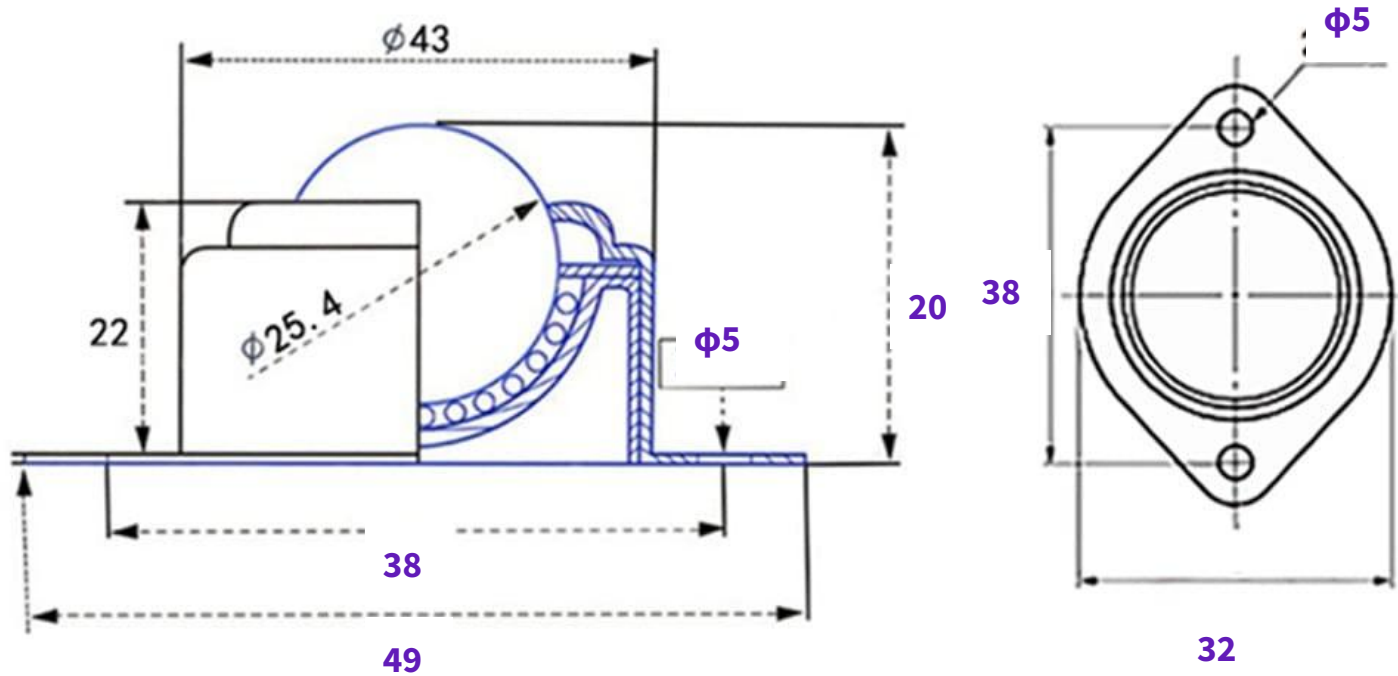
Partlist

- 3D Printer: <https://www.prusa3d.com/category/original-prusa-mini/>
- Motor: <https://www.pololu.com/product/4805>
- Motor Bracket: <https://www.amazon.com/dp/B07HHY2BJN>
- Caster Wheel: <https://www.amazon.com/dp/B072M9S2CQ>
- Motor Shaft Adaptor: <https://www.amazon.com/dp/B08M3N9SSG>
- Wheel: <https://www.amazon.com/dp/B01HCVYJ5Q>

Build Volume



Caster Wheel Dimensions



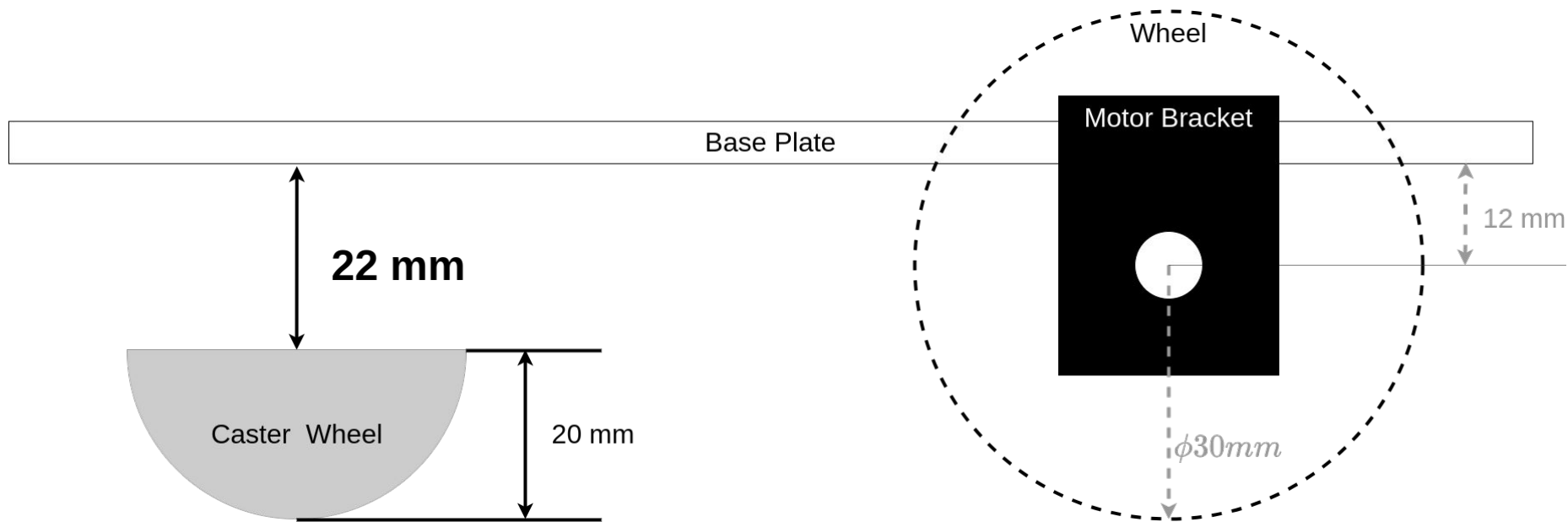
Wheel Dimensions



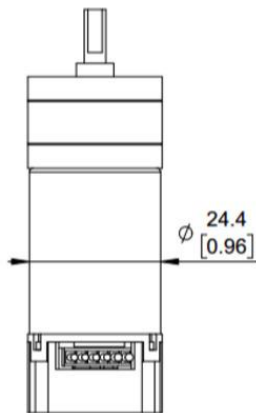
Motor Bracket Dimensions



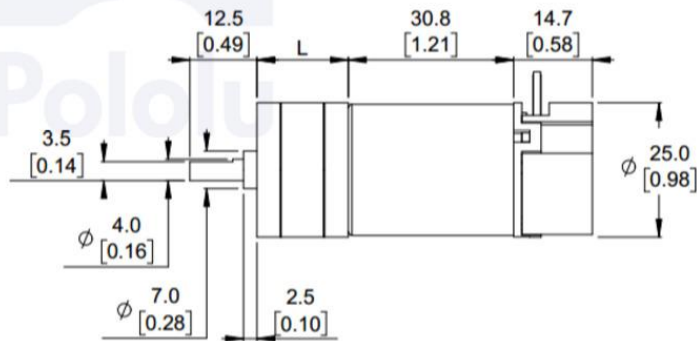
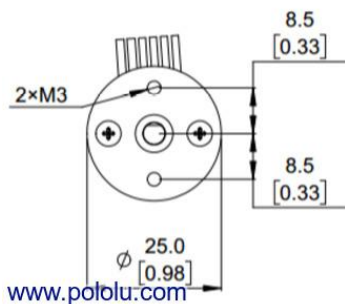
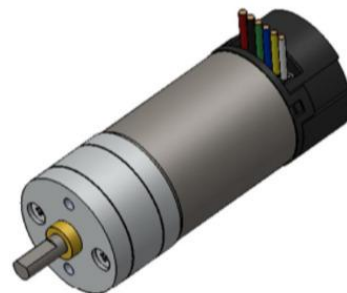
Caster Wheel Support



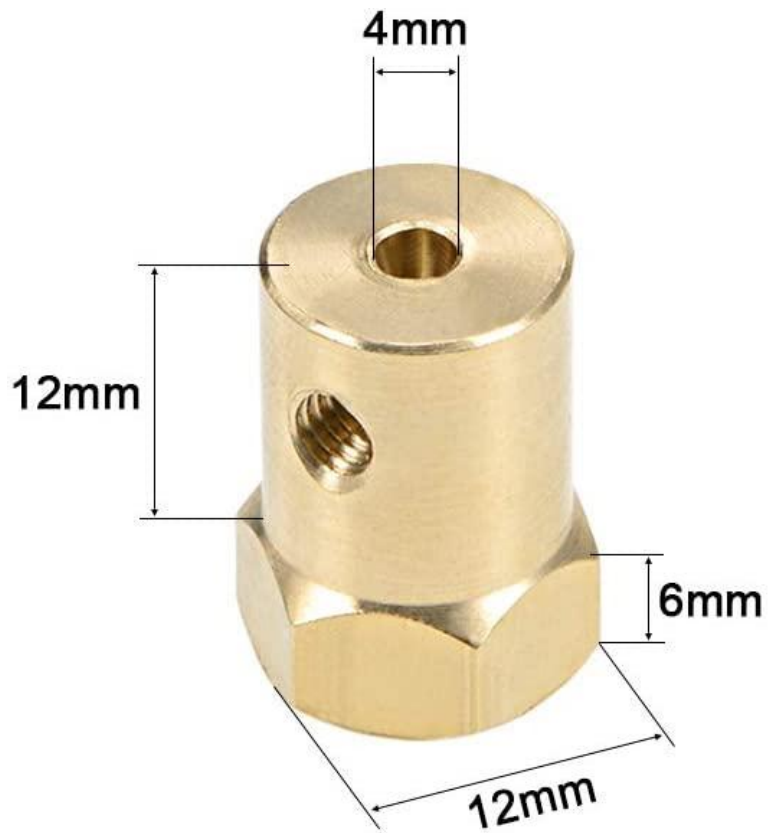
Motor Dimensions



Gear ratio	L
4.4:1	17 mm [0.68 in]
9.7:1	19 mm [0.75 in]
20.4:1	19 mm [0.75 in]
34:1	21 mm [0.83 in]
47:1	21 mm [0.83 in]
75:1	23 mm [0.91 in]
99:1	23 mm [0.91 in]
172:1	25 mm [0.98 in]
227:1	25 mm [0.98 in]
378:1	27 mm [1.06 in]
499:1	27 mm [1.06 in]



Motor Shaft Adaptor Dimensions



Makerspace @ Donaghey Hall

Make an appointment [here](#)