



How to build your robot

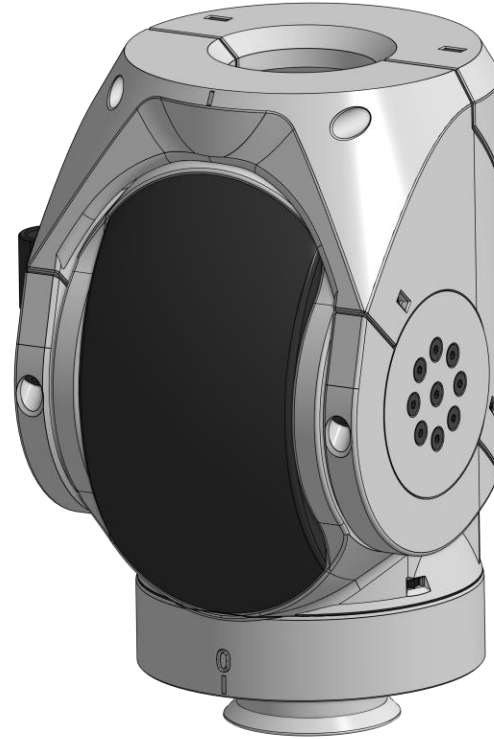
www.pib.rocks/build

assembly instructions for:

Elbow

pib#4 research

Assembly in this tutorial is for Elbow
right, for elbow left it will be mirrored



PRINT

BUILD

DEVELOP

YOUR OWN ROBOT

Printable and pre-assembled parts

Pib's elbow consists of **12 printable parts** and is assembled in **14 steps**.

In order to construct the elbow, you will need to print the parts as seen in the table.

Please note: For better readability we use the abbreviations in the tutorial: C08 instead of C08-Central_rotator_bracket.

Printable parts

C15s-Central_rotator_motor_connector

C09s-Central_rotator_connector

C77s-Motor_housing_central_rotator

Printable parts

C39-Elbow_upper_shell

C36s-Elbow_lower_shell

C31s-Elbow_shaft_motor

C35R-Elbow_clamp_right

C38-Elbow_cover

C37s-Elbow_rotator_bracket

C40-Elbow_upper_shell_lock

C34s-Elbow_motor_connection

C35L-Elbow_clamp_left

C32-Elbow_axis_cable

C74-Wire_holder

Non-printable parts

You will also need the following non-printable parts from our pib.Box Master.

If you do not have it yet, you can buy in our shop

<https://shop.pib.rocks>.

Non-printable parts

1 x **E18 STS3095** Servo

1 x **E27 STS3215** Servo

1 x **M18** Metal-motor-Adapter-L

2 x **M20** medium sized ballbearings (50 x 56 x 7mm)

23 x **S01** M3 nuts

4 x M2 6 mm screws (comes with motor package=

4 X M2.5 8mm screws

2 x **S03** M3 8 mm screws

14 x **S08** M3 20mm screws

1 x **S10** M3 25mm screws

5 x **S11** M3 30mm screws

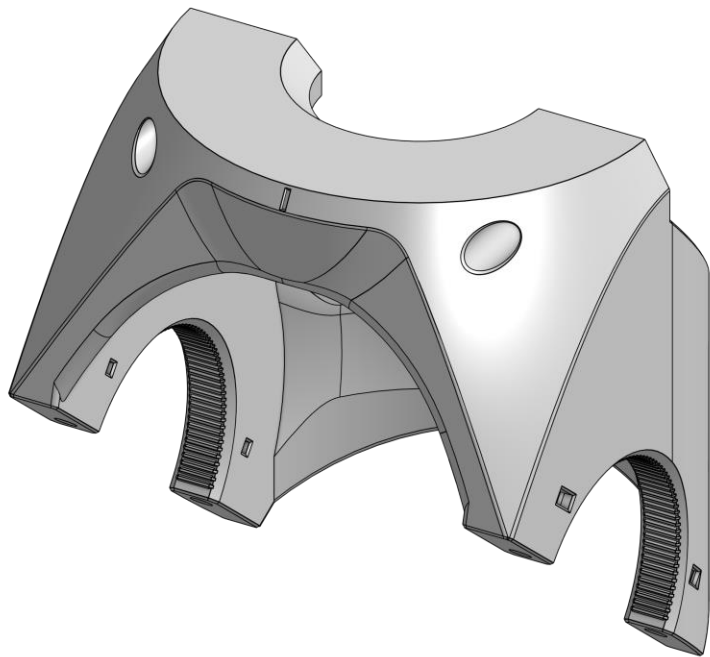
15 x **S13** M3 40mm screws

2 x **M06** Ballbearing_Axial (70x50x3)

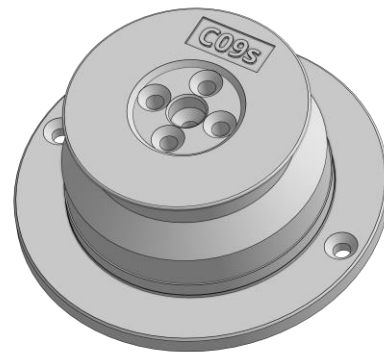
4 x **M07** Thrust_Bearing (70x50x1)

Printable parts - Overview

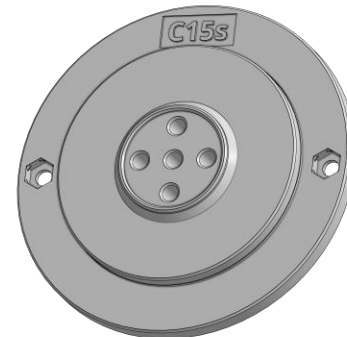
C39-Elbow_upper_shell



C09s-Central_rotator_connector

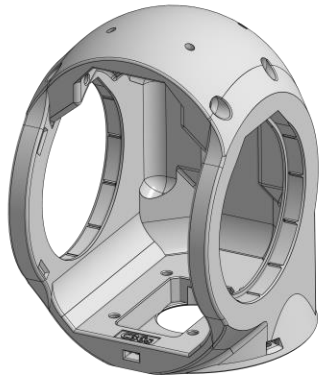


C15s-Central_rotator_motor_connector



Printable parts - Overview

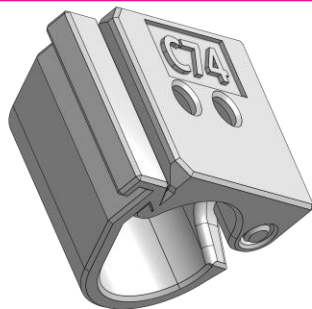
C36-Elbow_lower_shell



C31s-Elbow_shaft_motor



C74-Wire_holder



C35R-L-Elbow_clamp_right-left

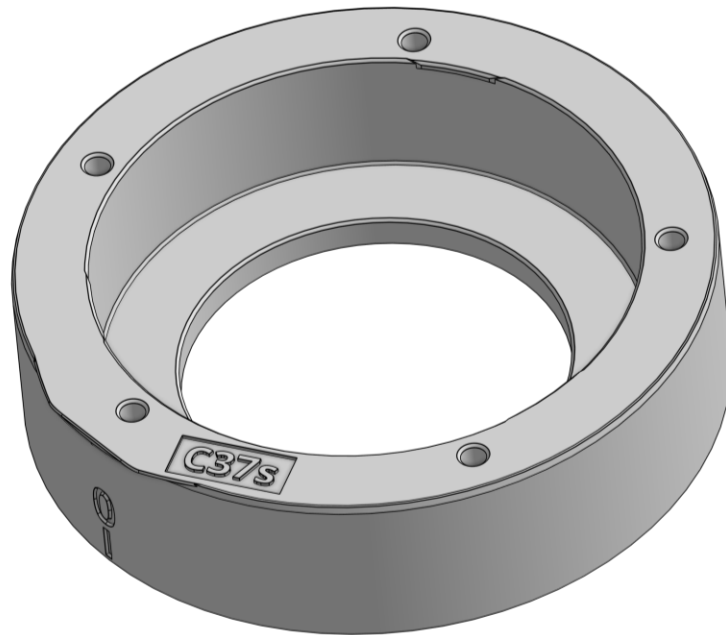


Printable parts - Overview

C38-Elbow_cover



C37s-Elbow_rotator_bracket



Build it better: our suggestion for assembling pib



We recommend **tools** for each step. These are a suggestion, you can of course also use other tools.



1-5

We have categorized each step according to its **difficulty** - from **1-5** (1 being the easiest, 5 the hardest)



We also show you which **non-printable parts** you need for each step

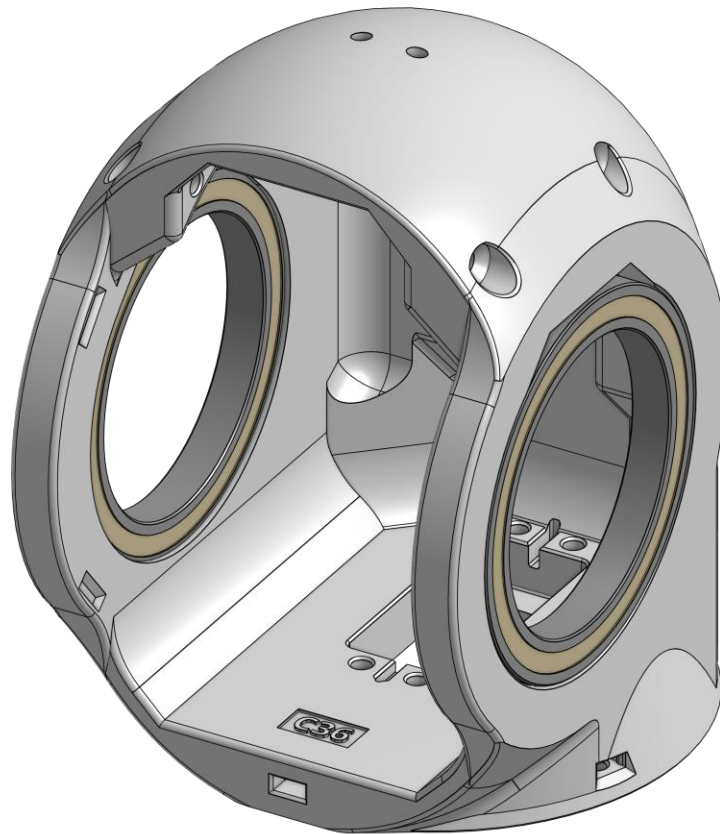
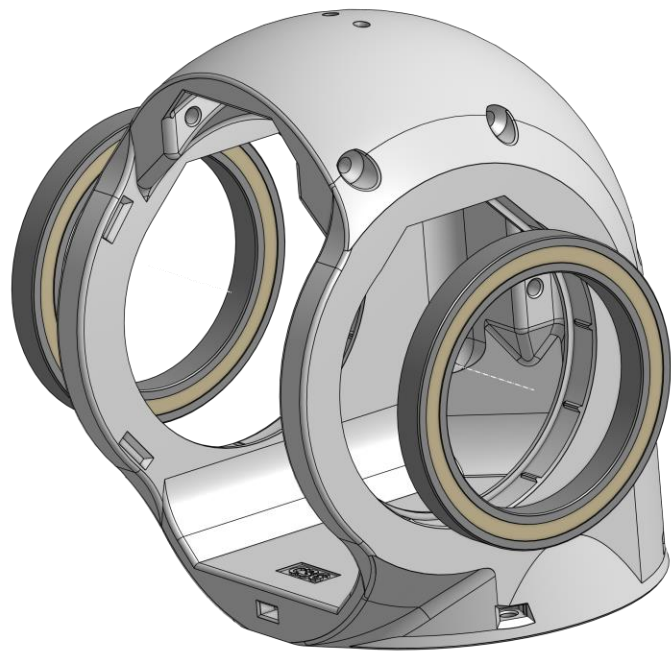
Step 0

Make sure all motors in this tutorial are calibrated according to tutorial "**step 1c motor calibration**"



Step 1a

Place 2 **M20** in the shown spots in **C36**.



Step 1b

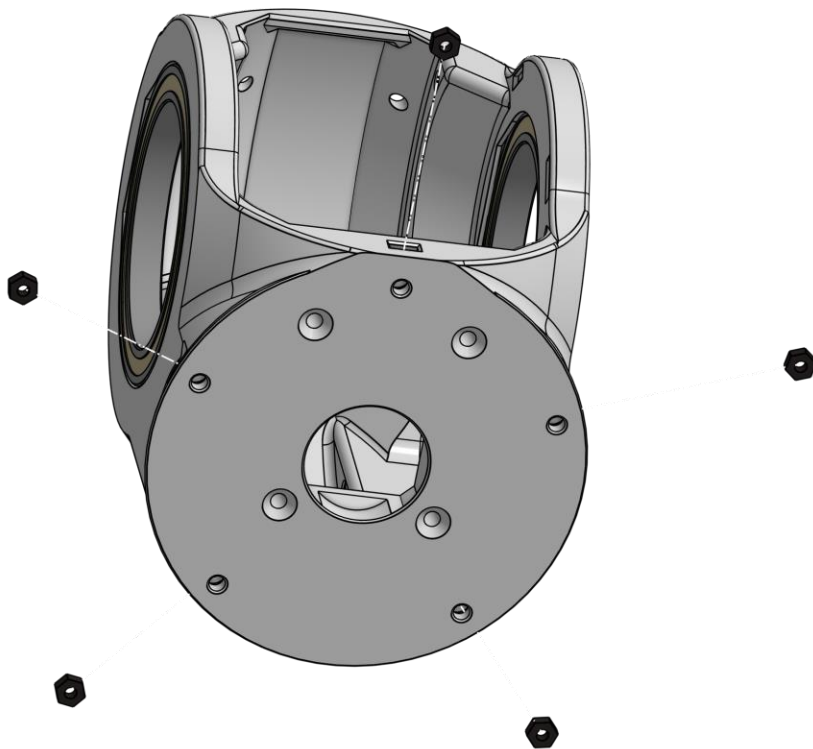
Place **5 x M3 nuts** in the shown spots in **C36**.



1



5x



Step 1c

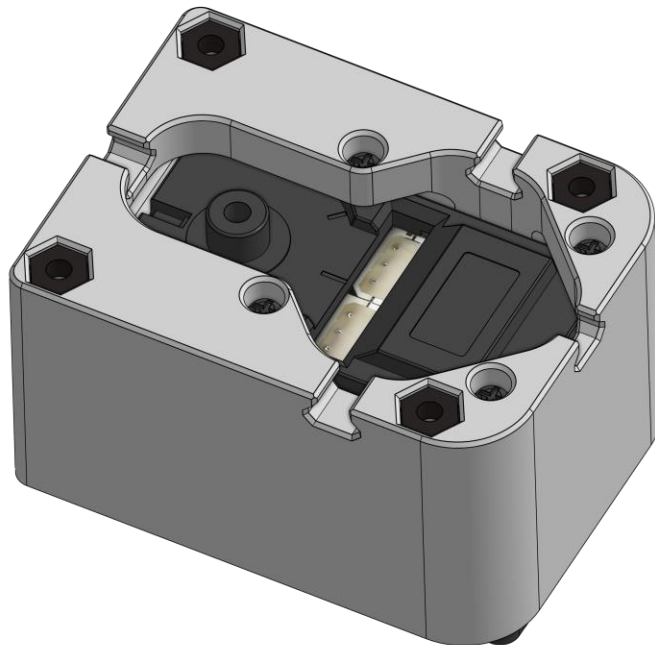
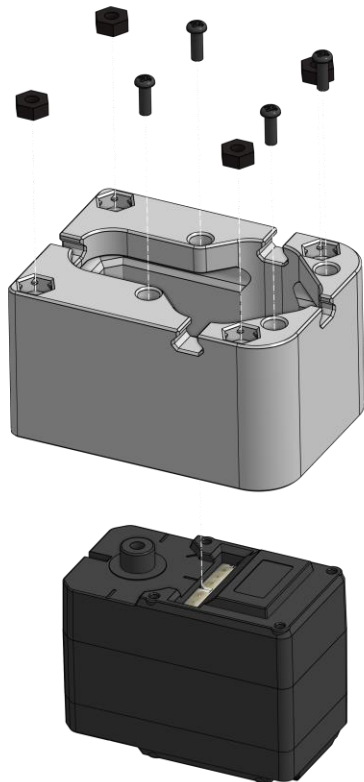
Attach **E27** to **C77s** using **4 x M2 10mm screws** and add **4 x M3 nuts**



1



4x

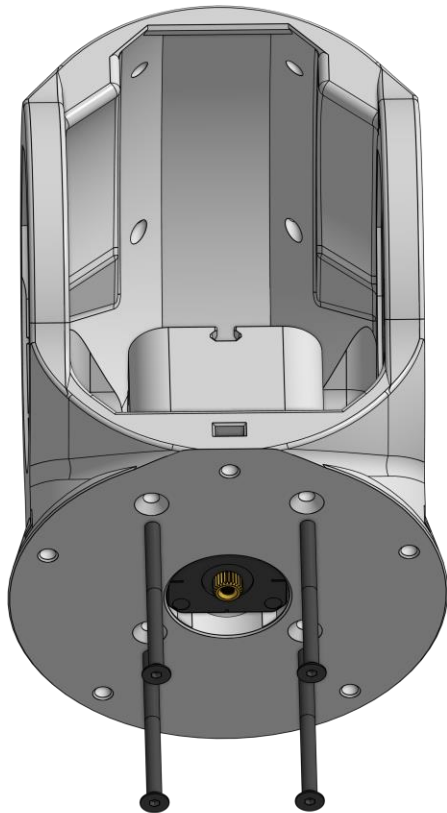


Step 1d

Attach previous assembly to **C36s** using **4 x M3 40mm** screws



4x



Step 1e

Connect **E18** to **C34s** using **4 x M2 10mm screws** and add **4 M3 nuts**. For easier placement remove the silver disks connected to motor and reassemble them after inserting the motor.



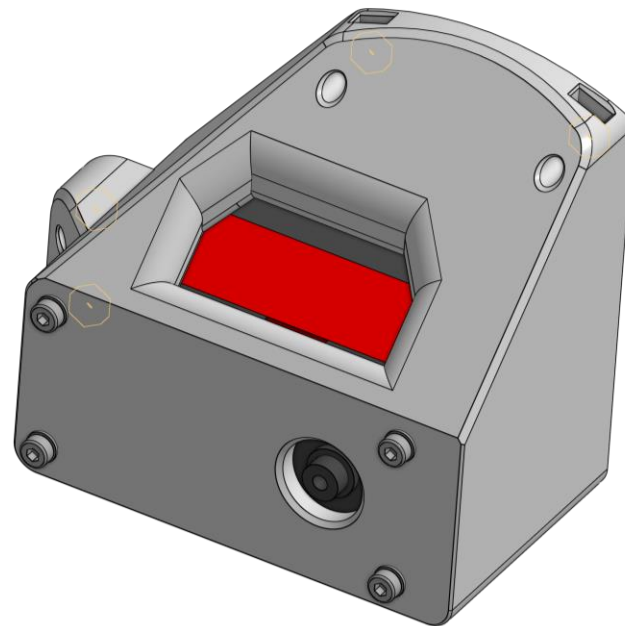
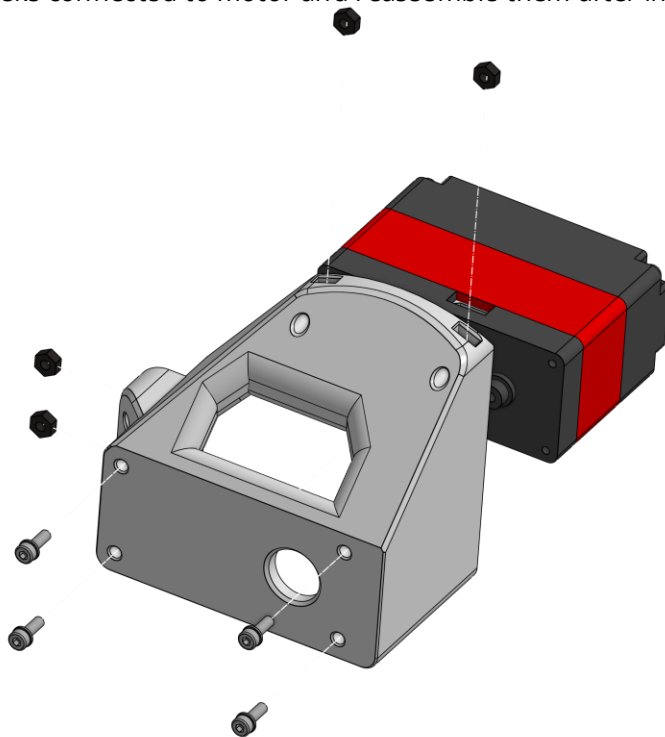
1



6x



2x



Step 2

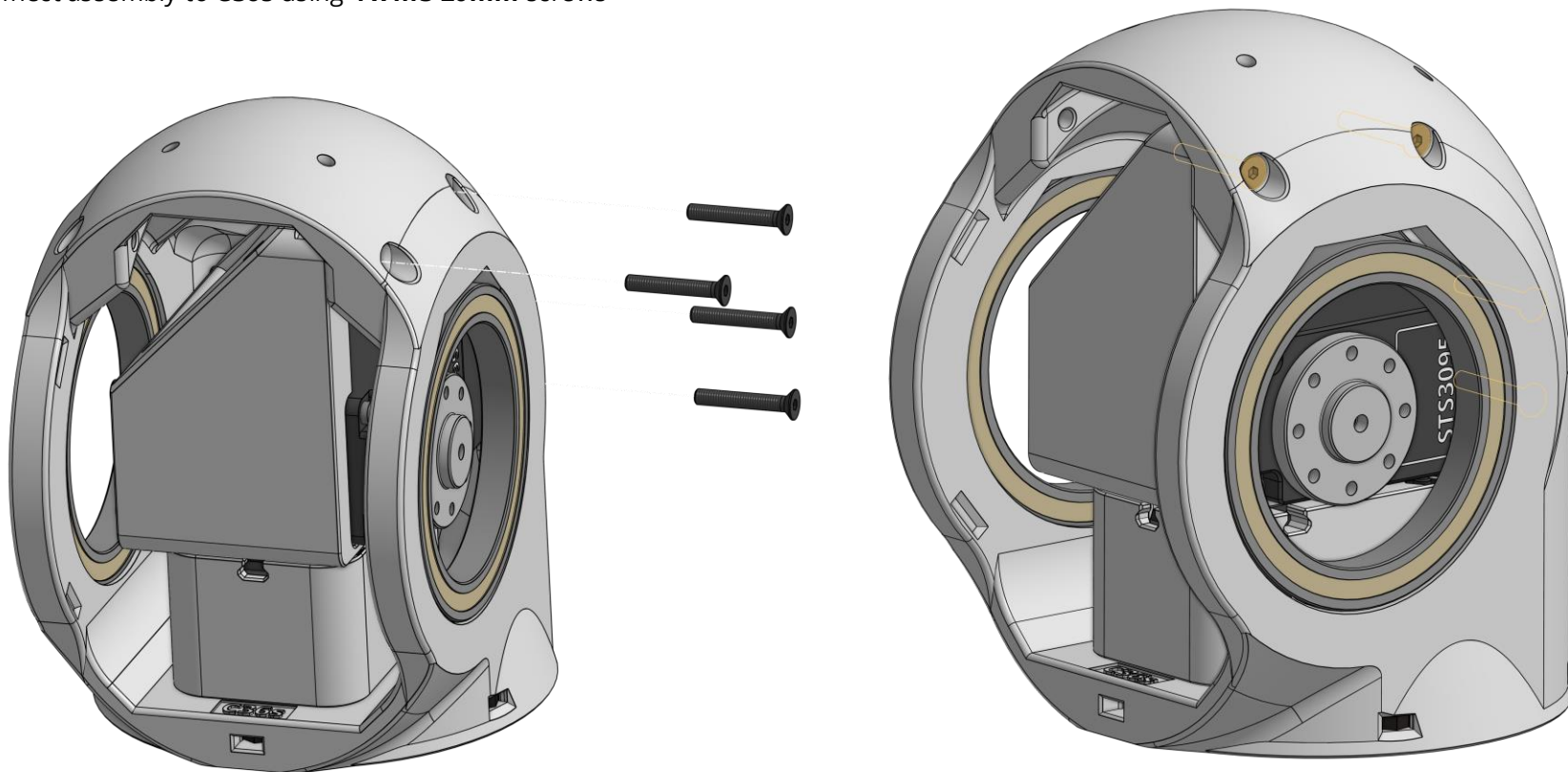
Connect assembly to **C36s** using **4 x m3 20mm** screws



1

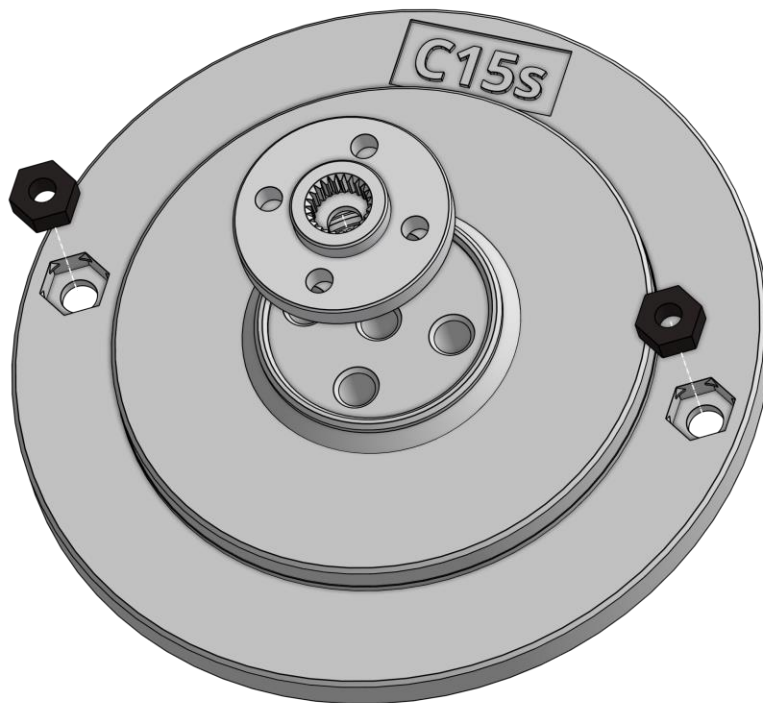


4x



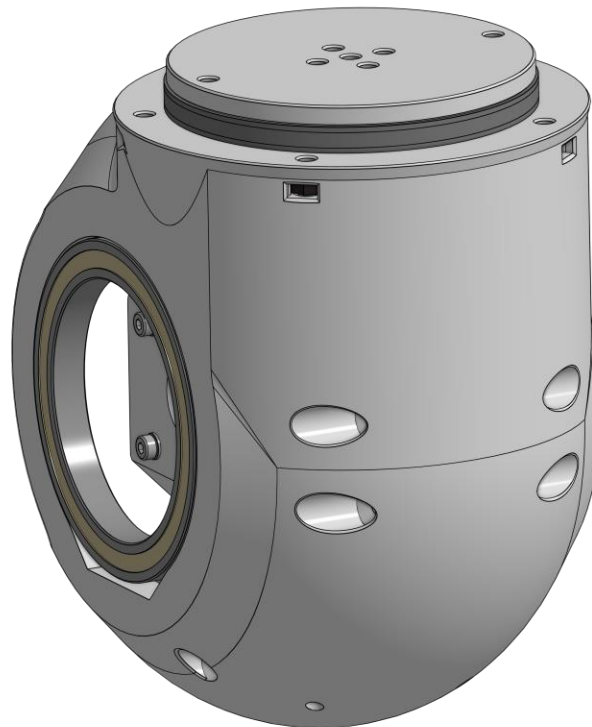
Step 3a

Insert **2 x M3 nuts** and **M18** in **C15s**



Step 3b

Place **M06** and 2 **M07** on top of **C15s**, then connect the assembly to **E18**



Step 3c

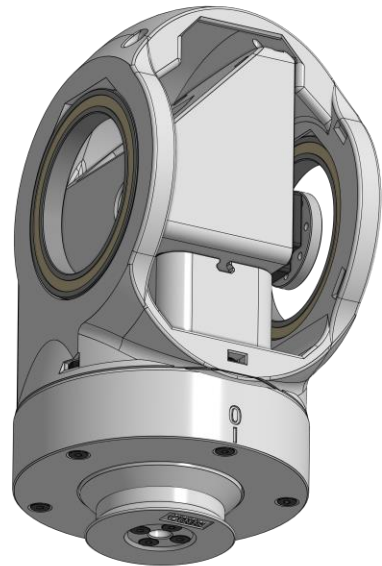
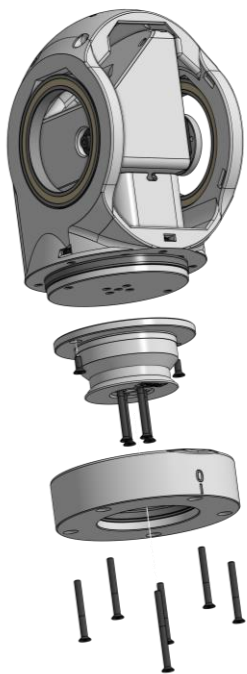


1



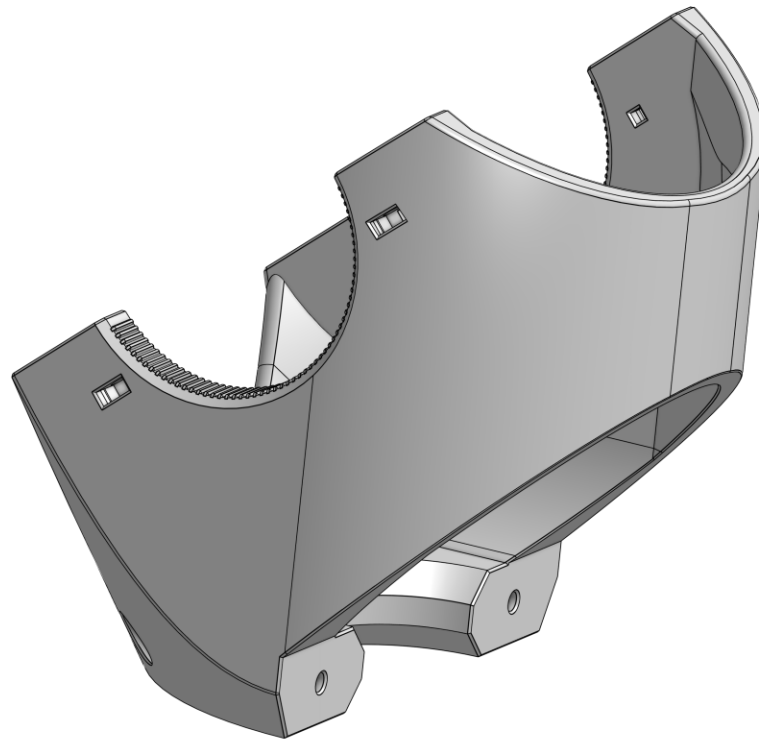
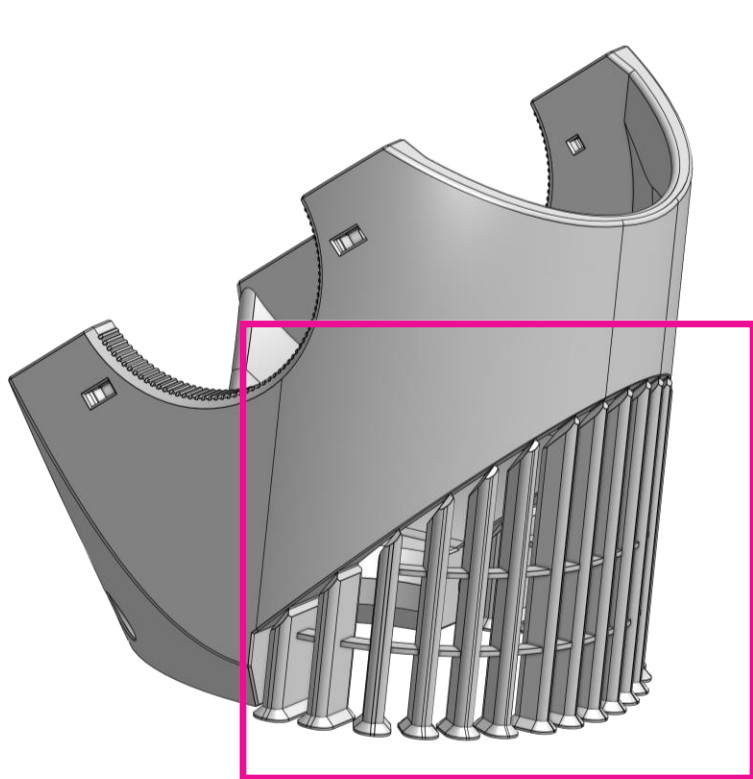
5x

- Connect **C09s** to **C15s** using 2 M3 8mm screws and 5 x M3 40mm screws.
- Place **M06** and 2 **M07** in **C37s**, then connect **C37s** to elbow using **2 x M3 30mm** screws and **5 x M3 40mm** screws.
- Connect **C37s** to the assembly using **5 x M3 30mm** screws. **Don't tighten screws very hardy.**



Step 4

Remove print helpers gently from **C39**.



Step 5

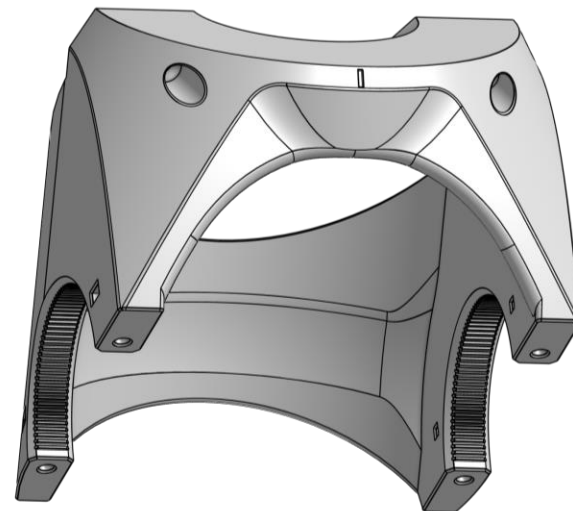
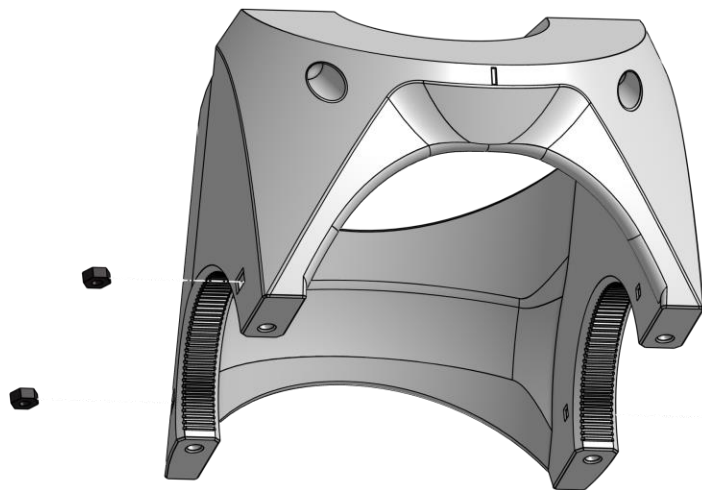
Place **4 x M3 nuts** in **C39**



1



4x



Step 6

Connect **C74** to **C32** using **2 x M3 nuts** and **2 x M3 20mm** screws



2



2x



2x

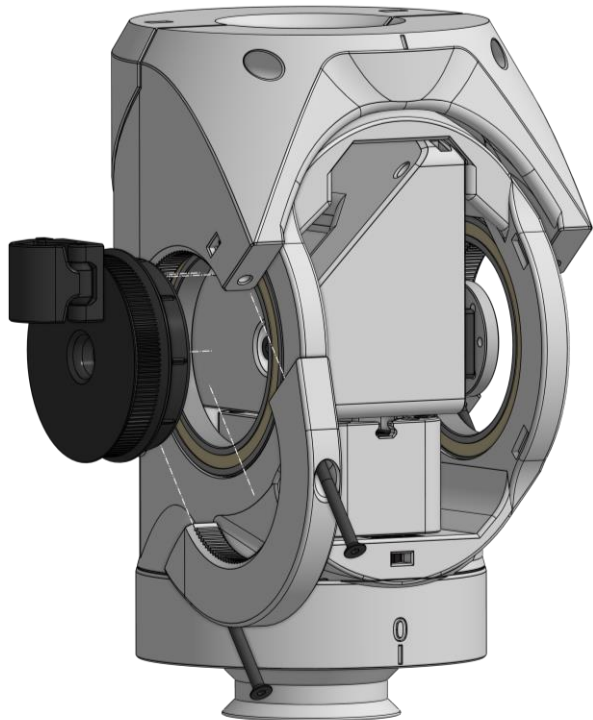


Step 7

Connect upper elbow to lower elbow using **C32** , **C35-L** and **2 x M3 40mm** screws.

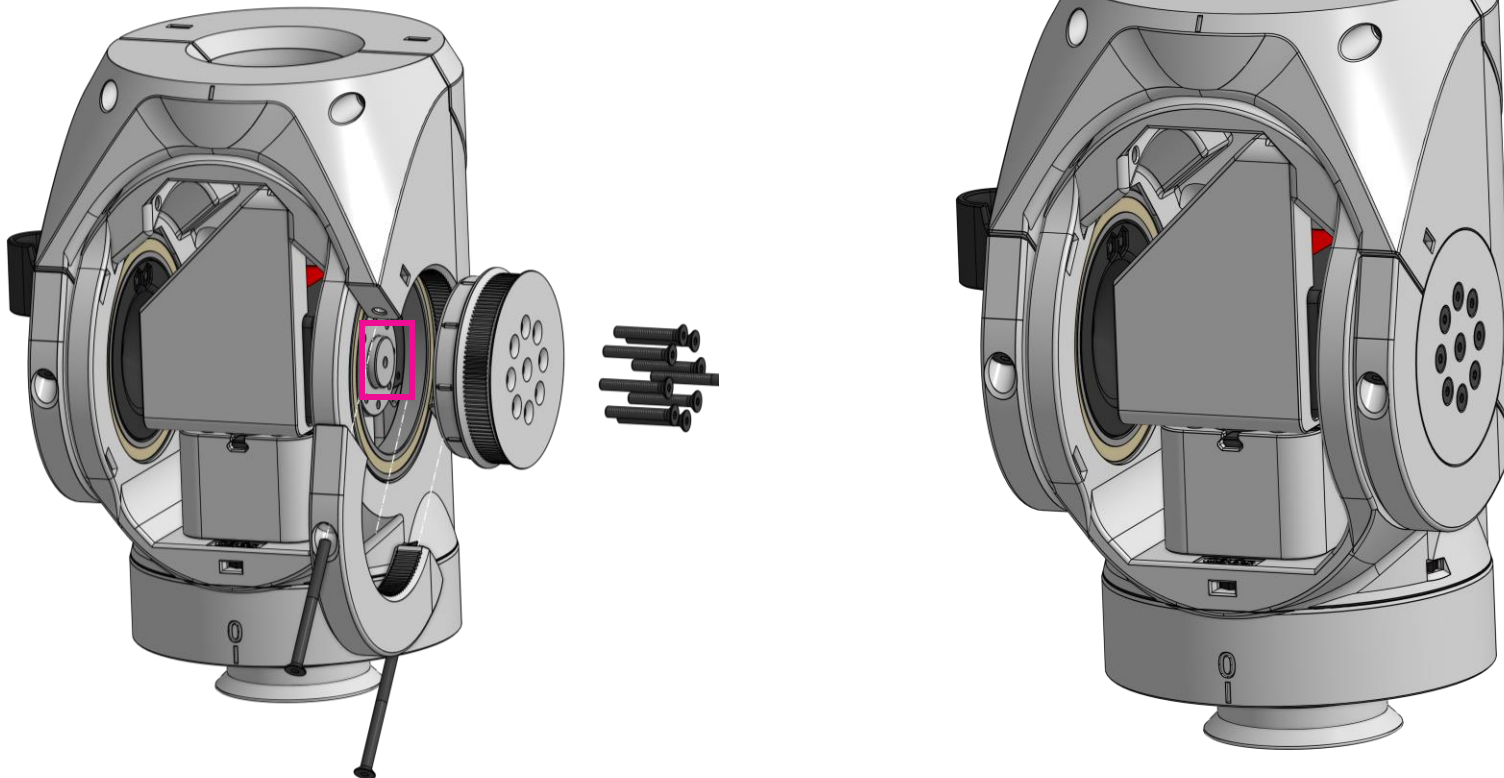


2x



Step 8

Connect **C31s** and **C35-R** to elbow using **2 x M3 40mm** and **9 x M3 20mm** screw. There is a small silver screw in the motor connected should be removed first as highlighted in magenta

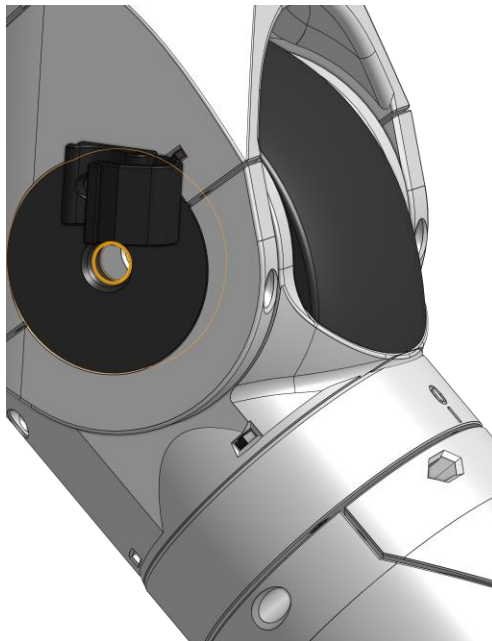


Step 9



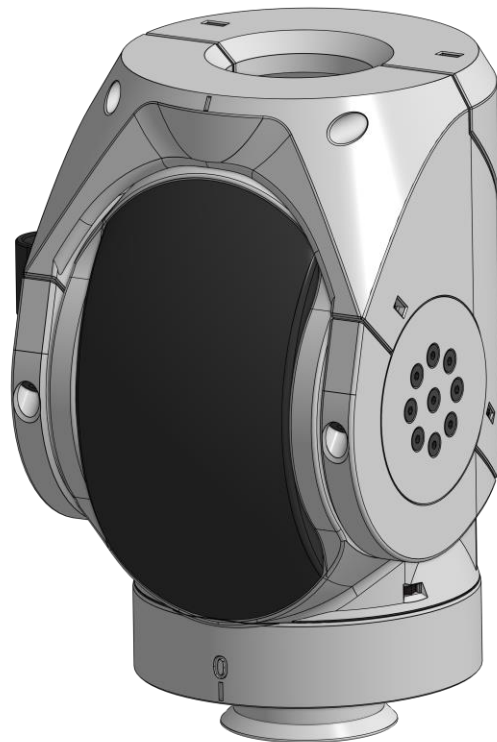
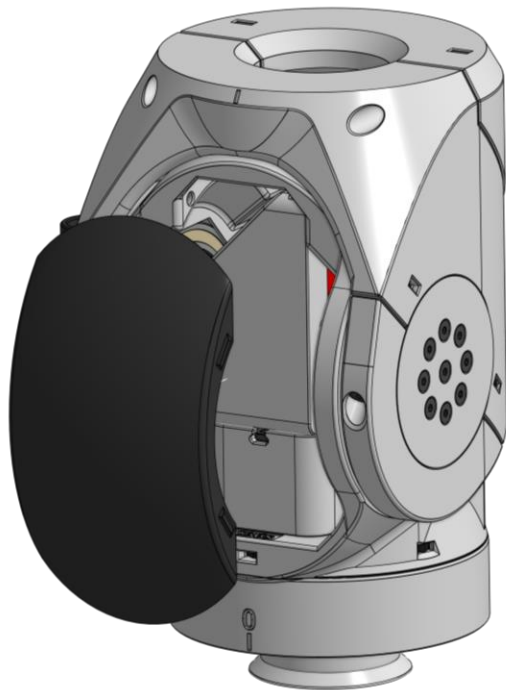
3

Connect elbow and lower arm rotation motors with one wire and then one wire from lower arm is place outside through the shown hole to be extended and connected to upper arm rotation motor



Step 10

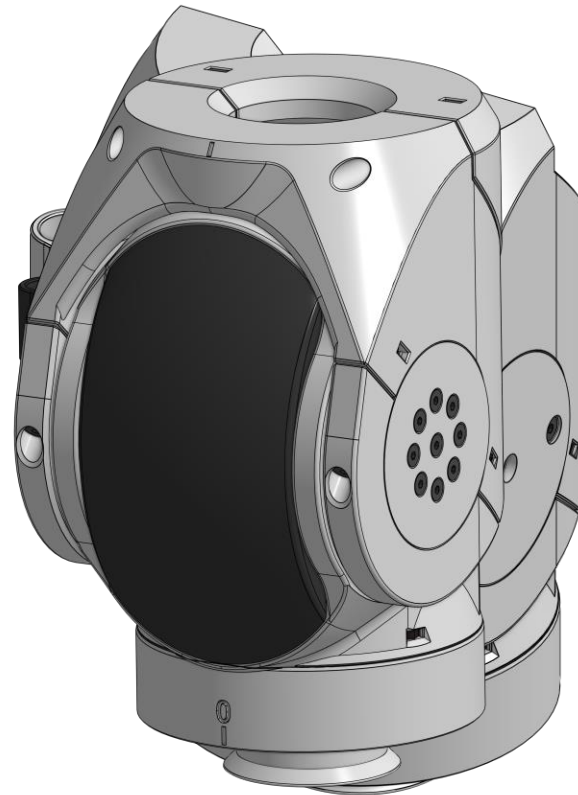
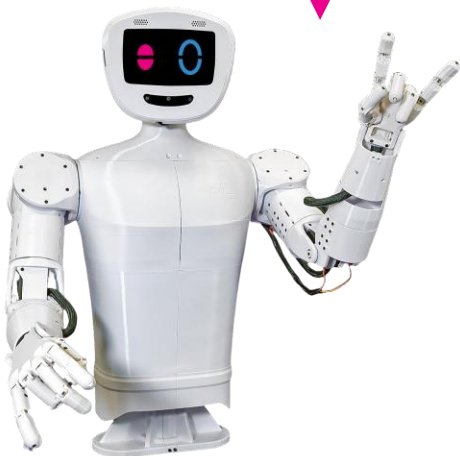
Attach **C38** to assembly.



Congratulations

You did a great job, pib's elbow is assembled!

Well done!



Do you need support?

Or do you need our pib.Box with all non-printable parts?

Or maybe you have some new ideas and improvements?

Please contact us.



team@pib.rocks

Send us an email.



discord.com/invite/GRdpyeDu7P

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Order non-printable parts for pib.