How to build your robot
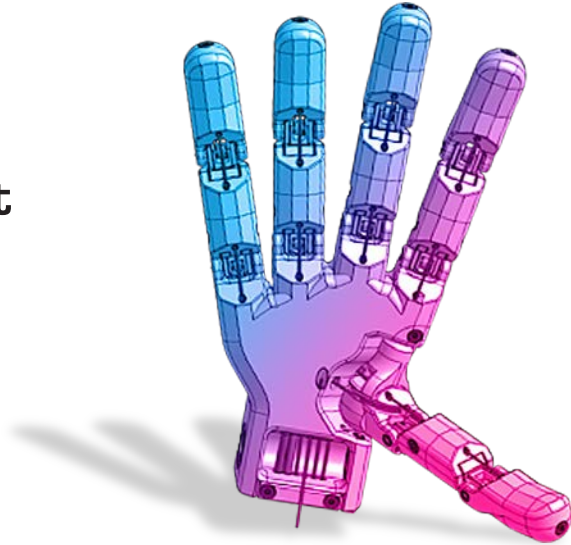
www.pib.rocks/build

assembly instructions for:

HAND

v2024

Printable parts

Pib´s hand consists of **4 printable parts** and is assembled in **8 steps.**

In order to construct the hand, you will need to print the parts as seen in the table. You also need 5 assembled fingers.

Please note: For better readability we use the abbreviations in the tutorial: D02 instead of D02-Palm_right.

This tutorial is for the right hand. If you want to build a left hand, please subsitute D13-R with D13 and D11-R with D11.

Printable parts
D02-Palm_right
D10-Tube_cover
D11-R-Ballbearing_enclosure_right
D13-R-Thumb_rotator_right

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.

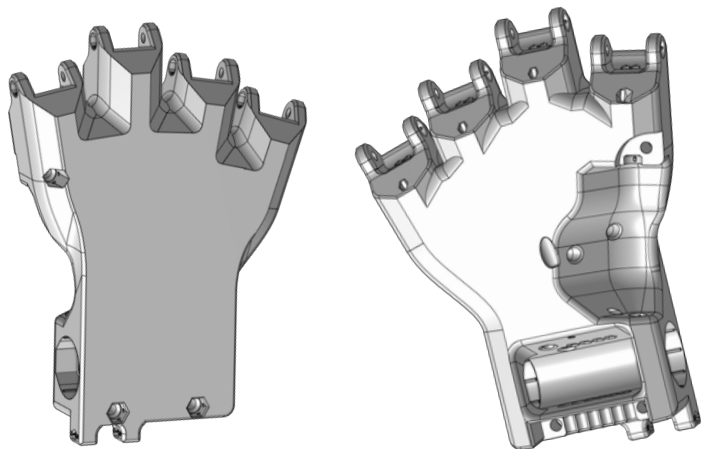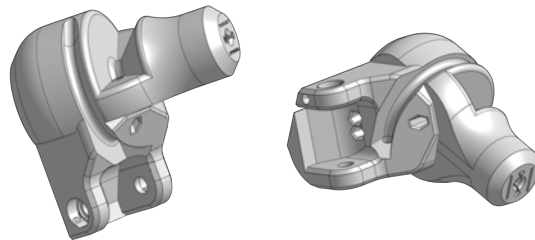| Non-printable parts |
| --- |
| 3 x **S01** M3 nuts |
| 1 x **S07** M3 18 mm screws |
| 2 x **S10** M3 25 mm screws |
| 7 x **M08** metal rods |
| 12 x **M01** Ballbearings |
| 2 x **M03** ballbearings |
| 5 x **M10** Spring TOR410 |
| 90 + 80 cm Fluorocarbon string |
| 4 x 60 cm + 2 x 65 cm teflon tubes |

Printable parts - Overview

D02-Palm_right

D13_R-Thumb_rotator_right
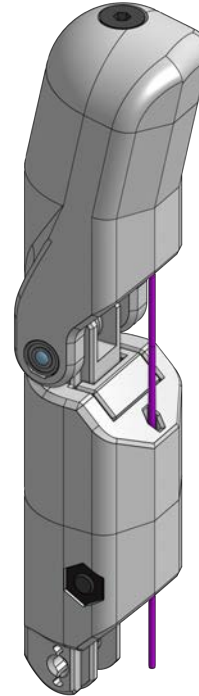

D11_R-Ballbearing_enclosure_right

D10-Tube_cover

Preassembled parts

You also need 5 assembled fingers.

You can find the assembly instructions for the finger here:

https://pib.rocks/build/how-to-build-pibs-finger/

Finger

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 1

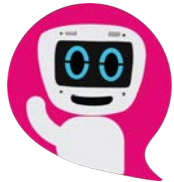Insert **1 x M10** spring into the shown place in **D05 (**= at the end of the finger assembly).

1   1x

Finger assembly

M10 spring
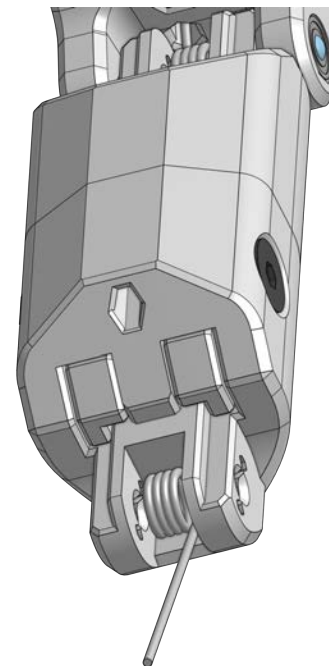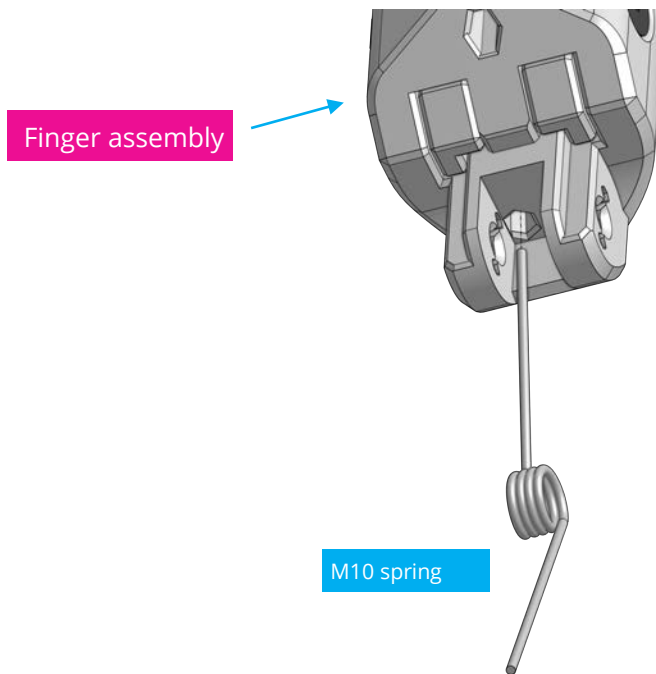
Step 2 - Introduction

Now we will assemble the finger to the hand palm.

We highly suggest the following order

- Index finger
- Middle finger
- Ring finger
- Little finger

Repeat the steps 1, 2a and 2b for each finger.

By starting with the index finger and then following our suggestion it will be easier to put the small ballbearings into their places.


4.

3.

2.

1.

Little finger

Ring finger

Middle finger

Index finger

Place for the thumb
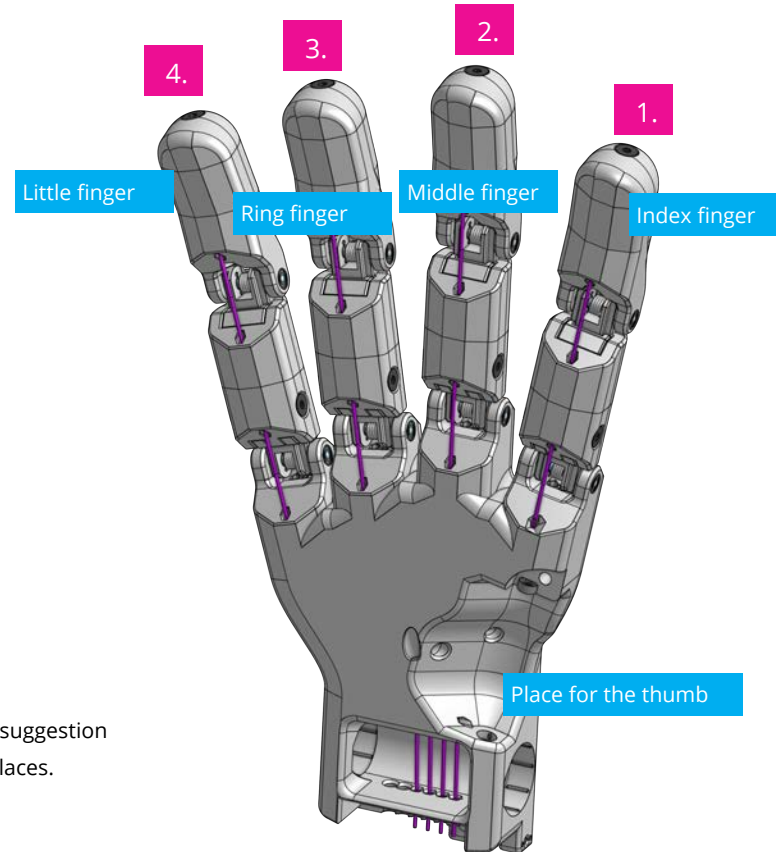
Step 2a

Guide the **fluorocarbon string** from each finger to the shown hole of **D02** and also put the **M10 spring** into the shown hole.

Preassembled finger

D02
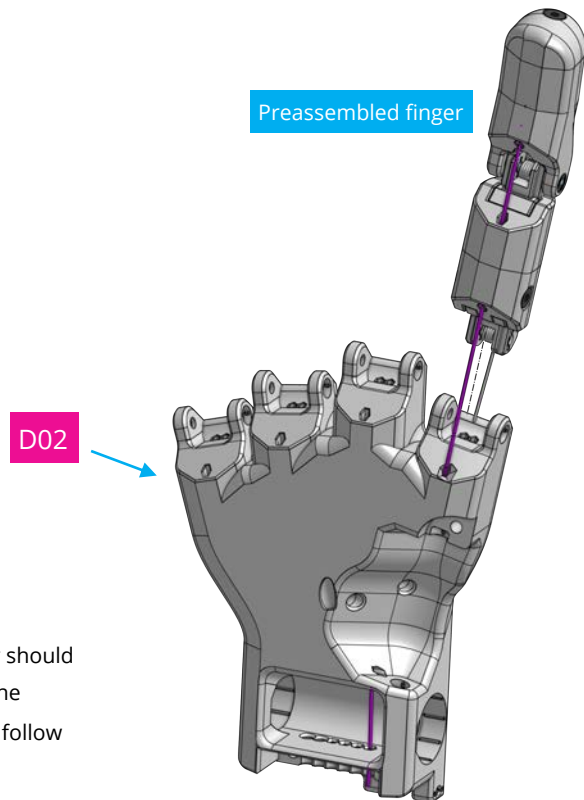
The fluorocarbon string of the index finger should come out of the first hole on the right (in the bottom part of D02). The other strings will follow on from this.
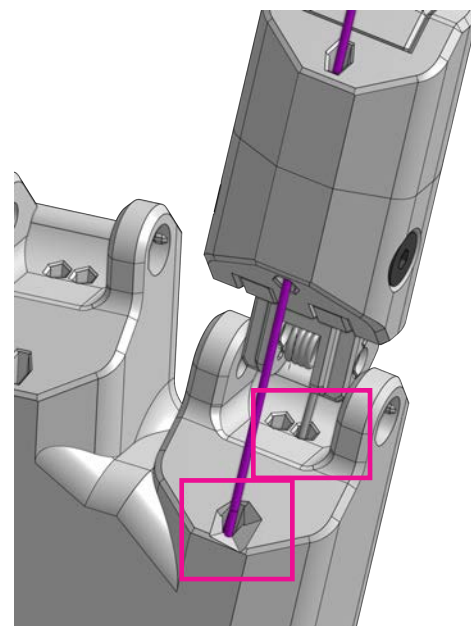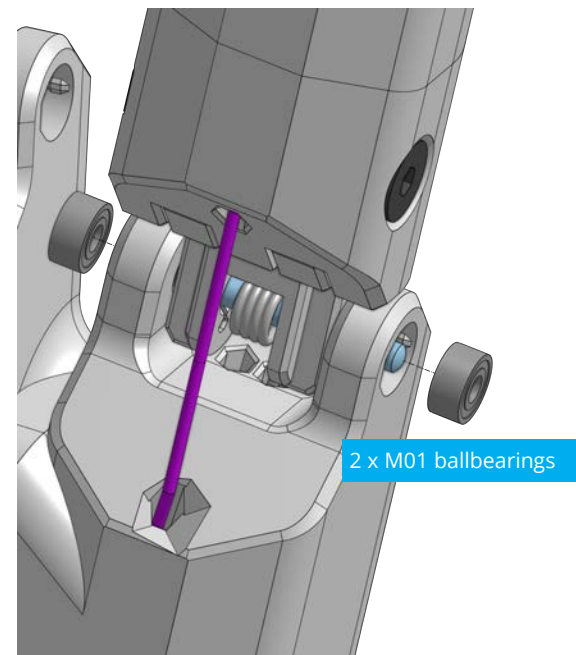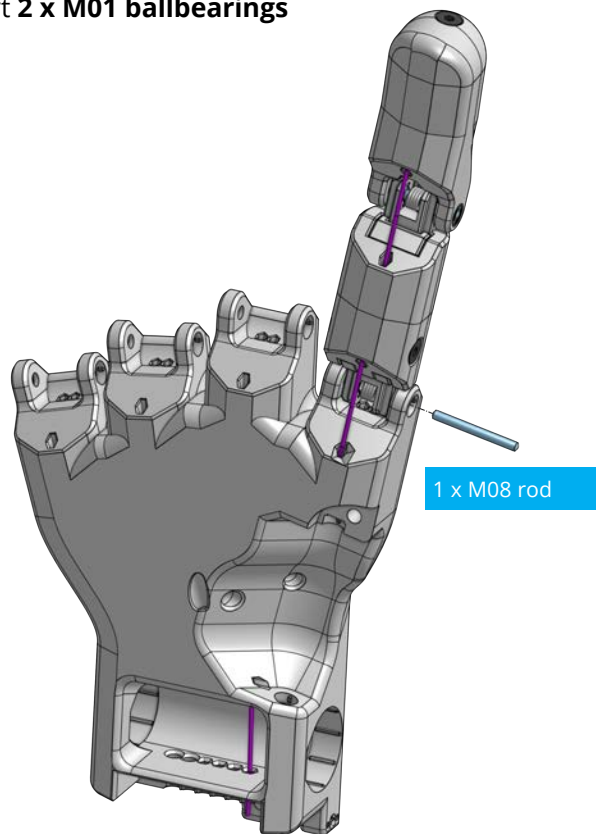
Step 2b

Fix the finger using **1 x M08 rod** and insert **2 x M01 ballbearings** in the shown spots of D02.

4

1x

2x

1 x M08 rod

2 x M01 ballbearings

This step can be a litte tricky!
We suggest to start with the ballbearing which faces a finger, then putting the rod and closing it with the other ballbearing. A hammer and a tongs will help you here!

Step 3a

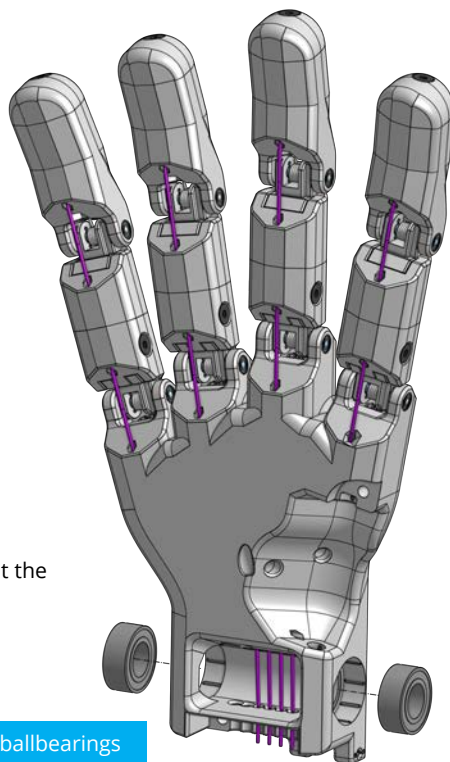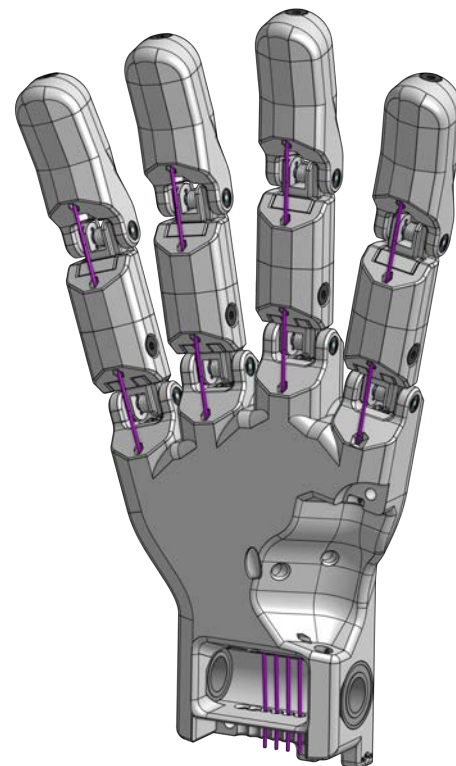1   3x

Place **3 x nuts** in the shown spots of **D02**.

Step 3b

1 | 2x
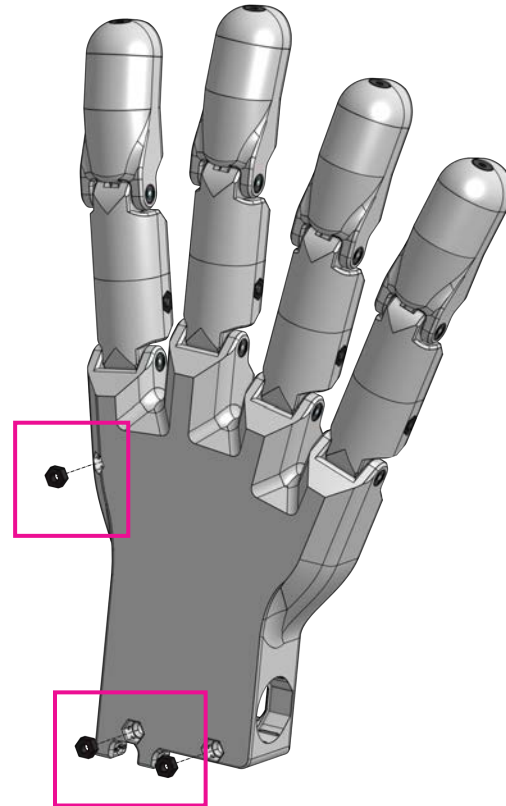
Place **2 x M03 ballbearings** into the shown spots of **D02**.

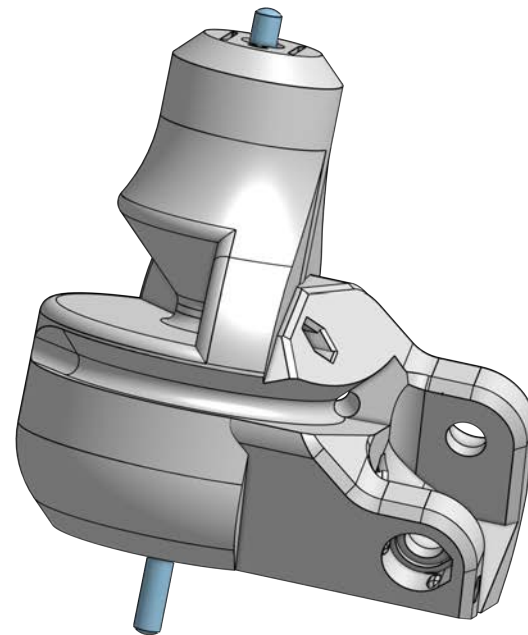You may apply some gentle force to put the ballbearings into place.

2 x M03 ballbearings

Step 4a

1 | 2x

Insert **2 x M08 rods** inside **D13-R**.

2 x M08 rod
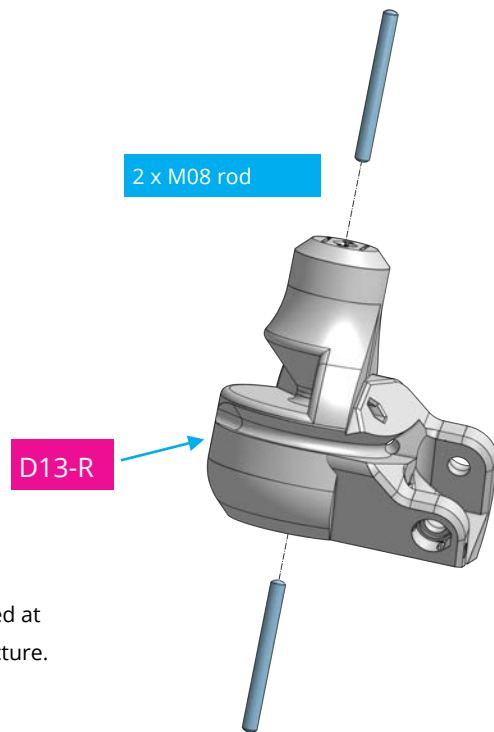
D13-R

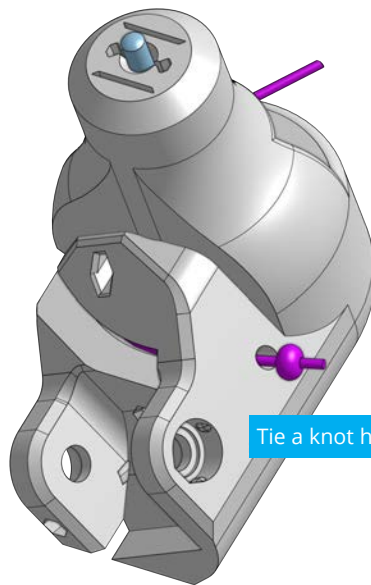Please note: The metal rods should be inserted at different depths in D13_R, as shown in the picture.

Step 4b

1   90cm

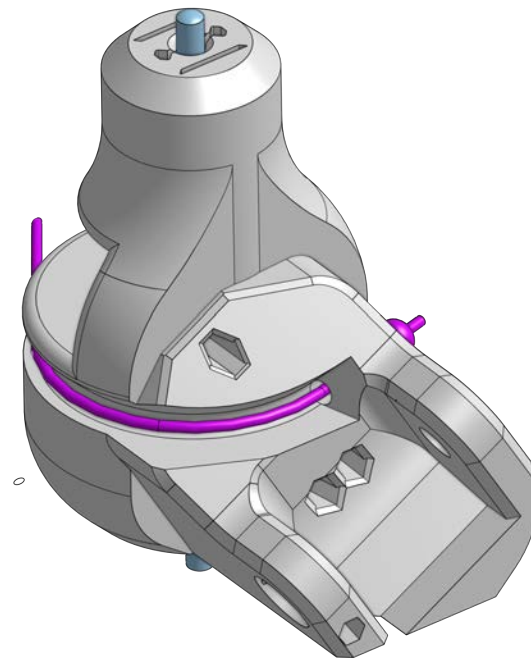Insert **90 cm fluorocarbon string** through the shown spot in **D13-R** and tigh a knot to tighten it.
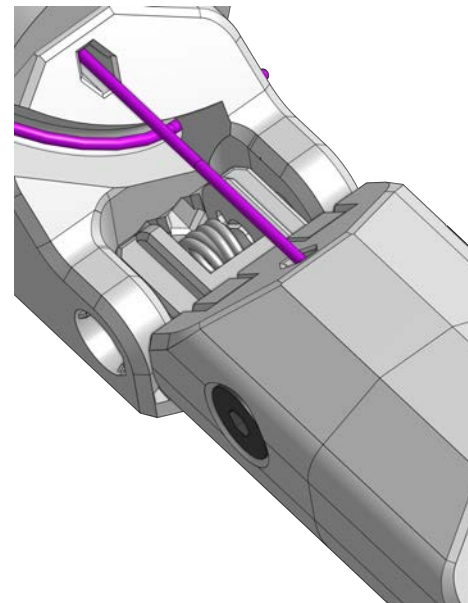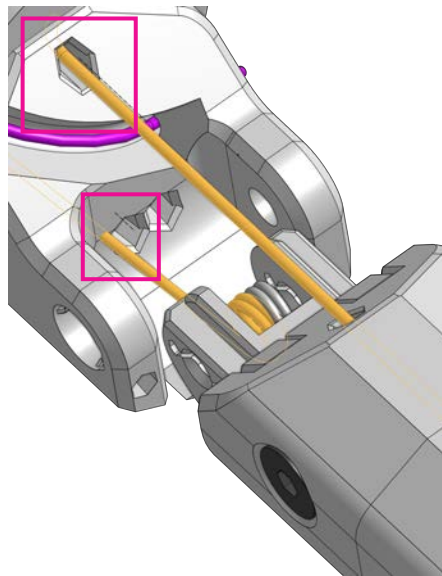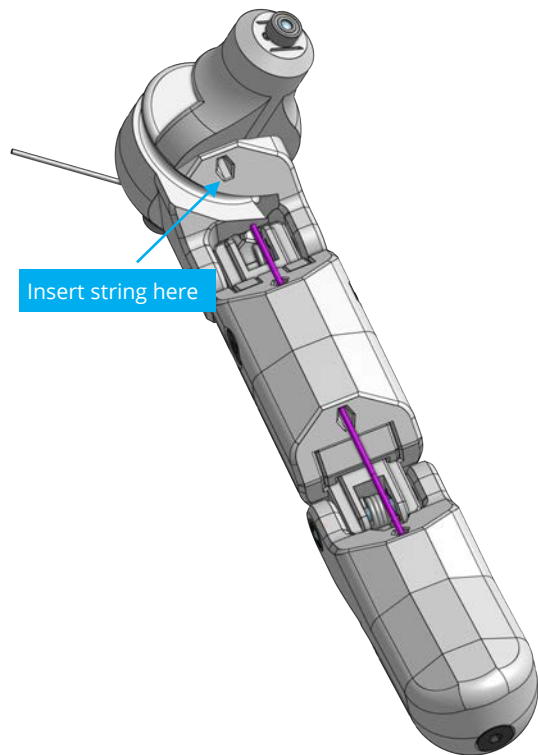
Our tip: Pull on the string to tighten the knot a
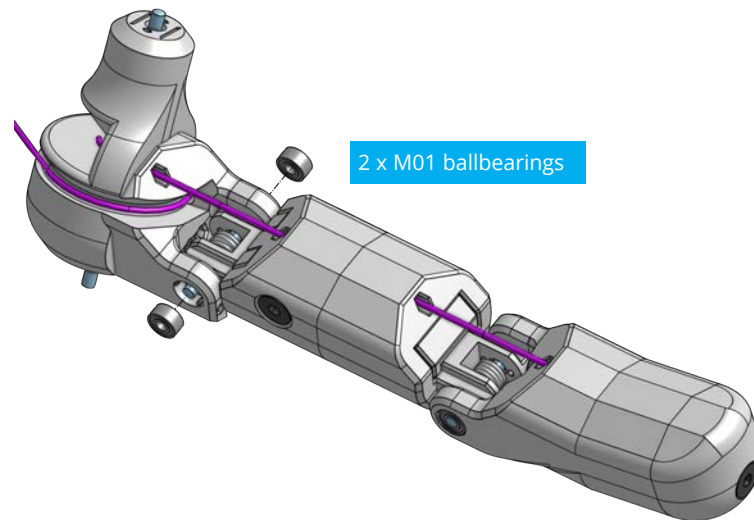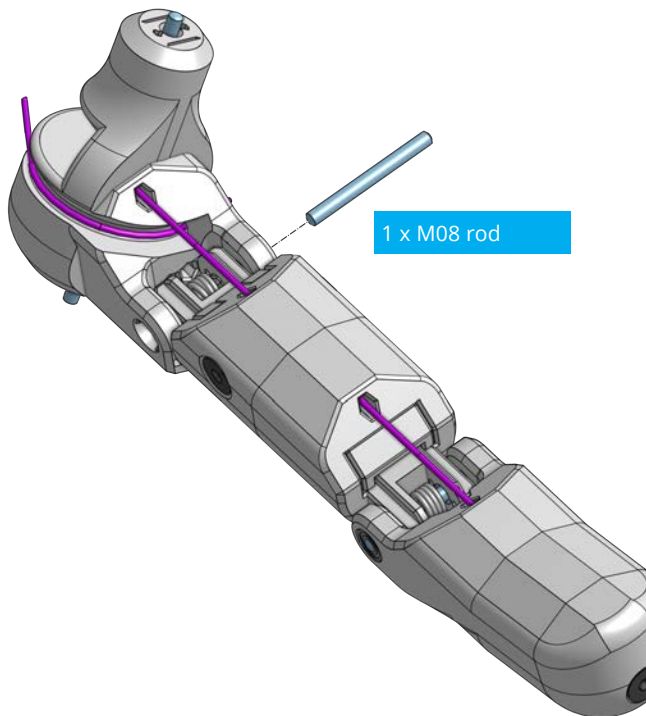little bit more.

Tie a knot here

Step 5a

Attach a **pre-assembled finger** to **D13-R** by guiding its fluorocarbon string through the shown spot.

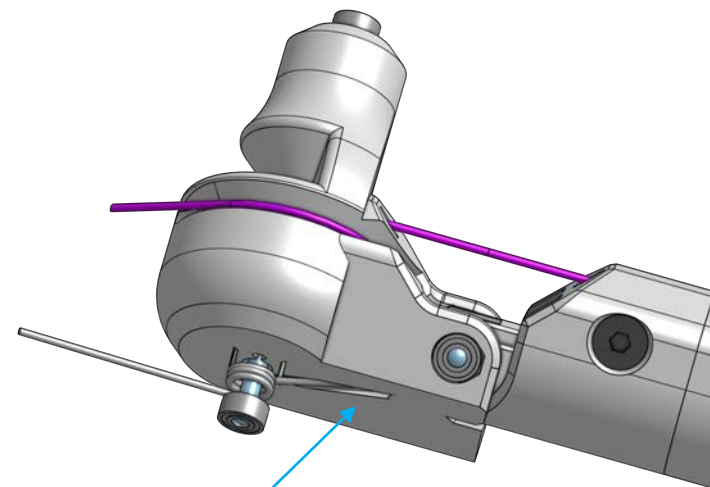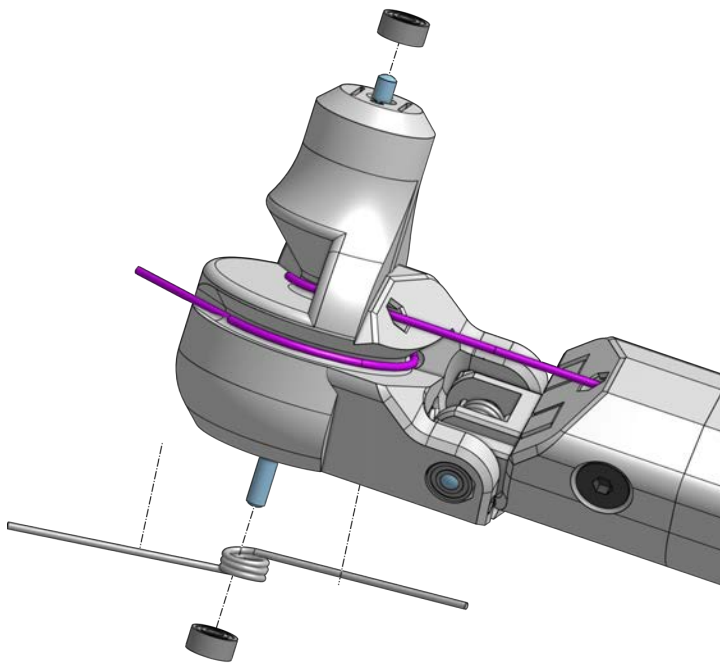Then, put the end of the **M10 spring** through the shown spot.

Insert string here

Step 5b

1   2x   1x

Fix the assembly using **1 x M08 rod**. Lastly insert **2 x M01 ballbearings**.

1 x M08 rod

2 x M01 ballbearings

Step 5c

Attach **1 x M10 spring** and **2 x M01 ballbearings** to the shown ends of both **M08 rods**.
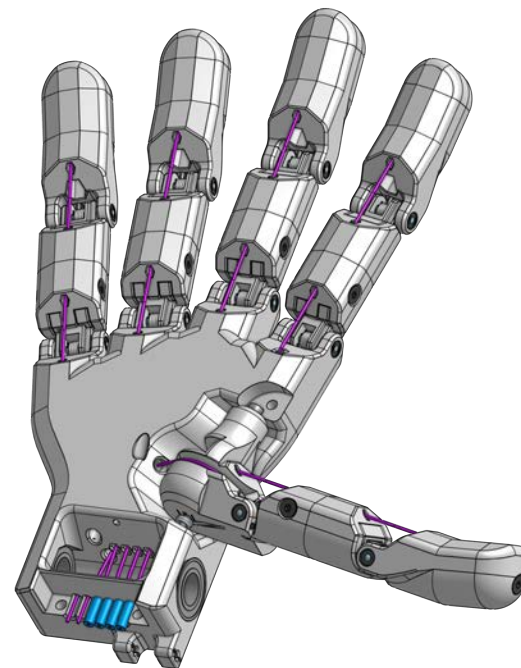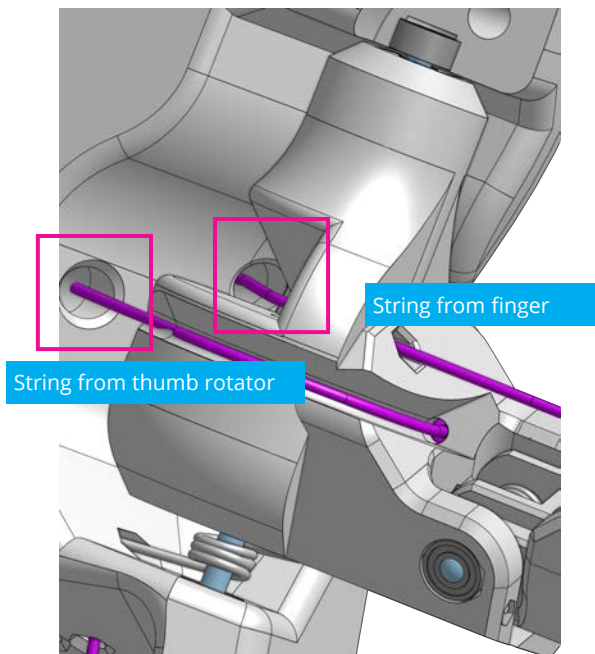
2

2x

One end of the spring should be inserted here
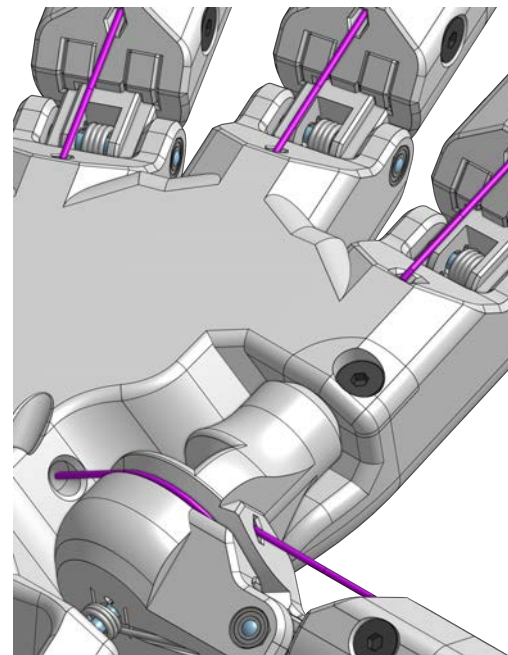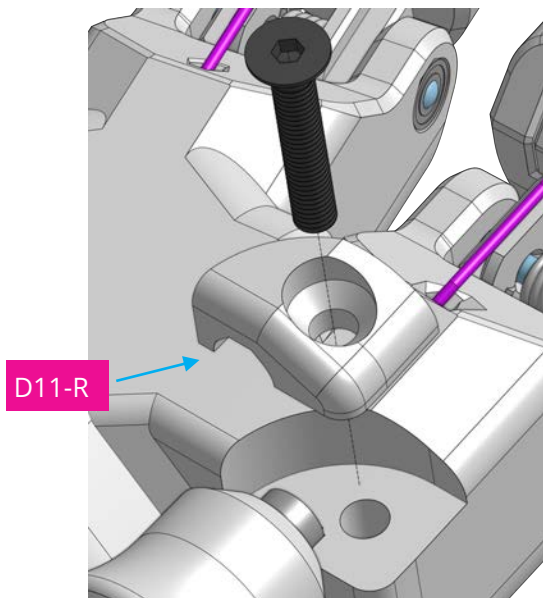
Step 6a

Now we can assemble the thumb to the hand:

Guide **both strings** from the thumb through the shown holes and push the thumb into place (the thumb must snap into the palm).

String from finger

String from thumb rotator

6 strings in total!

Step 6b

1 1x

Use **D11–R** and **1 x 18mm screw** to fix ballbearing.

D11-R

Step 7a

Cut 4 x 60cm and 2 x 65cm teflon tubes.

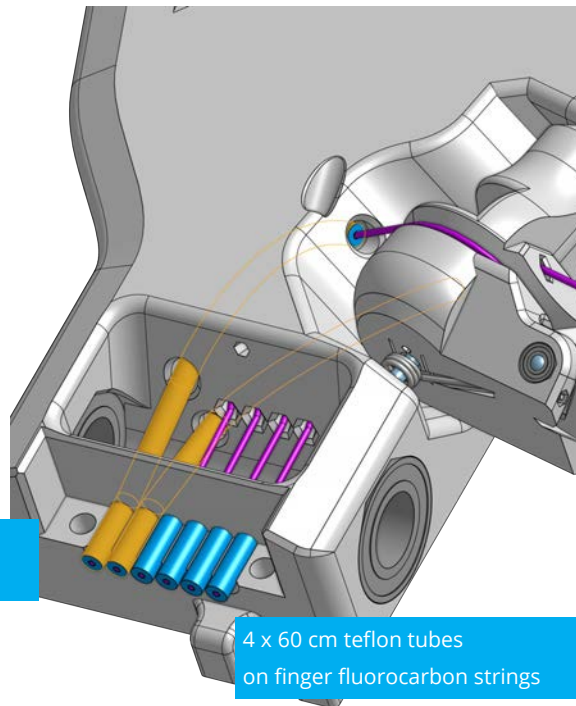Insert the 4 fluorocarbon strings of the finger into each 60cm teflon tubes.

Insert the 2 fluorocarbon strings of the thumb into each 65cm teflon tubes.

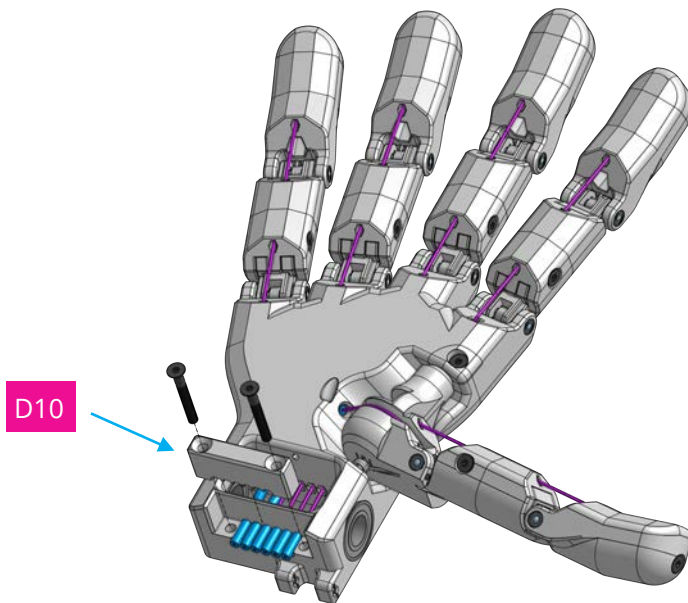Put the thumb tubes as far into the palm as you can!
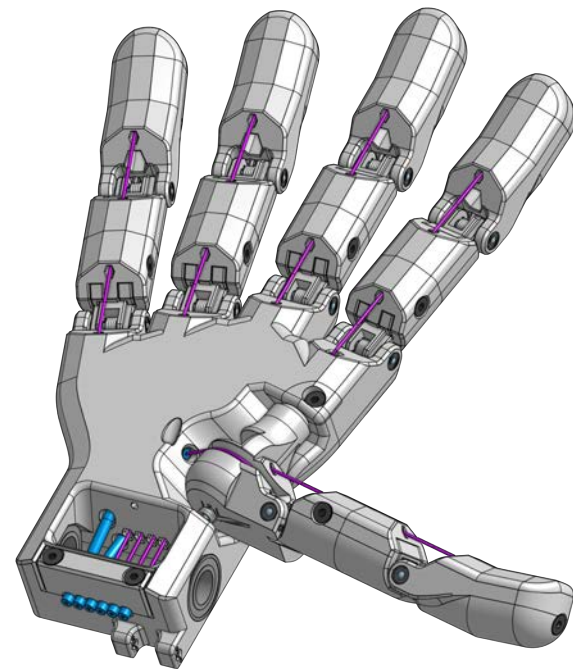
2 x 65 cm teflon tubes
on thumb fluorocarbon strings

4 x 60 cm teflon tubes
on finger fluorocarbon strings

Step 7b

Enclose the tubes with **D10** and **2 x 25mm screws**.

1   2x

D10

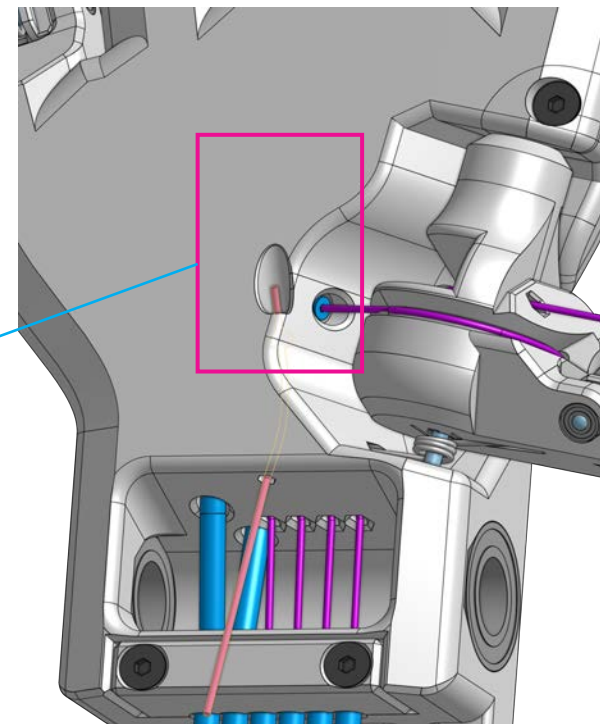Make sure to fix D10 tightly onto the hand.

The tubes shouldn´t slip out!

Step 8

1   80cm
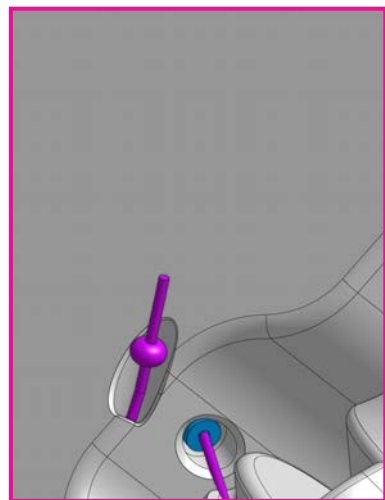
Lastly, insert **80cm fluorocarbon wire** through the shown spot and tigh a knot.
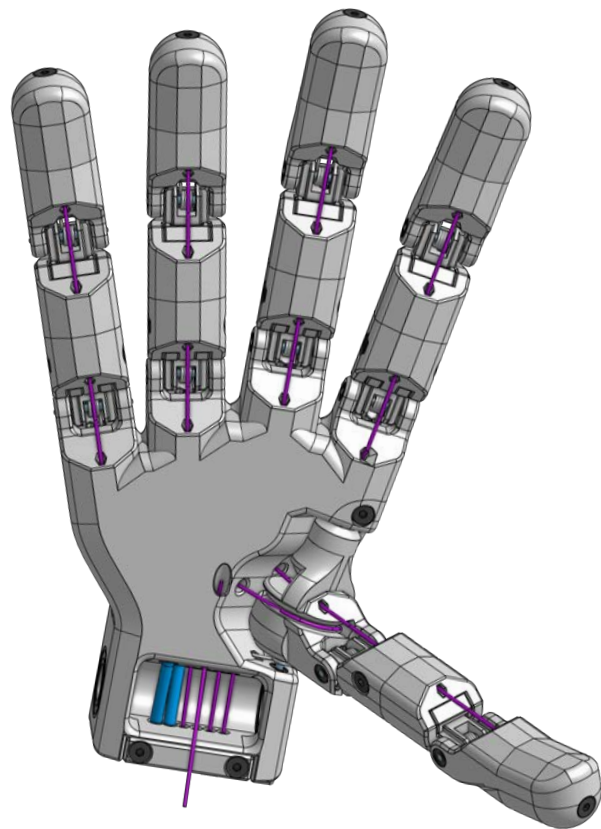

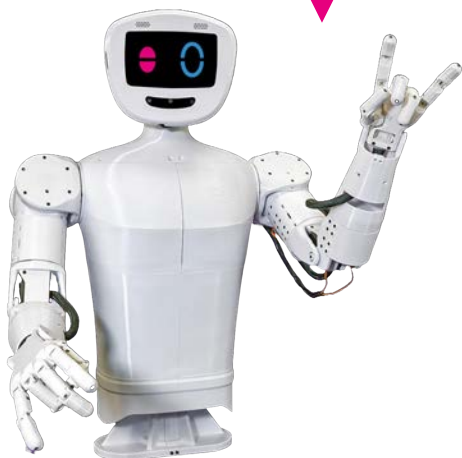
Our tip: Pull on the string to tighten the knot a little bit more.

Congratulations

You did a great job, pib´s hand is assembled!

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
Join us on Discord.

shop.pib.rocks
Order non-printable parts for pib.