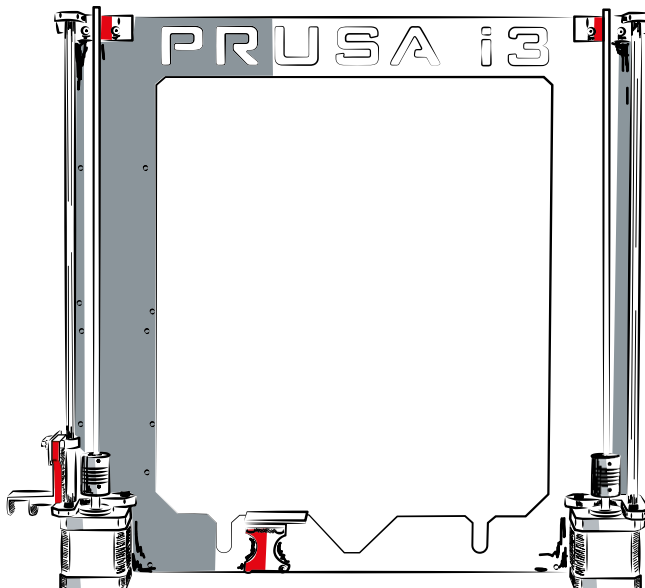# 3

Assembly of Axle Z

# List of components for Axle Z

2 x Smooth chrome rod Ø 8 mm x 320 mm

2 x Threaded rod M5 x 300 mm

16 x Screw M3 x 10 mm - DIN-912 class 8.8 black

2 x Screw M3 x 18 mm - DIN-912 class 8.8 black

2 x Flexible aluminium coupling 5 to 5 mm

2 x Nut M3 - DIN 934 class 8 black

1 x Upper support printed parts axle Z

1 x Lower right-hand support printed part axle Z

1 x Lower left-hand support left printed part axle Z

1 x End-stop printed part axle Z

1 x Aluminium frame

1

Attaching the motor fastener to the frame

**A**

1 x

B

1 x

C

1 x
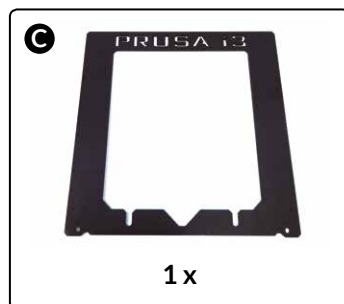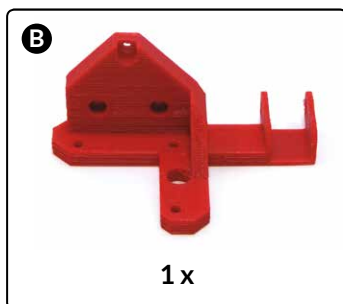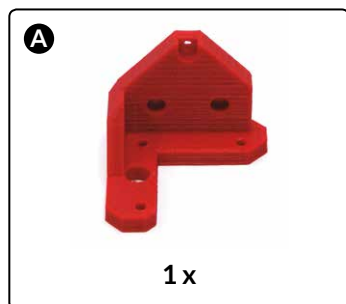
A Lower right-hand support printed part axle Z

Printed part to fasten the Nema 17 motor to the right-hand part of the frame, with housing for the smooth chrome rod Ø 8 mm x 320 mm.

B Lower left-hand support printed part axle Z

Printed part to fasten the Nema 17 motor to the left-hand part of the frame, with housing for the smooth chrome rod Ø 8 mm x 320 mm and fastener of chain cable retractor.
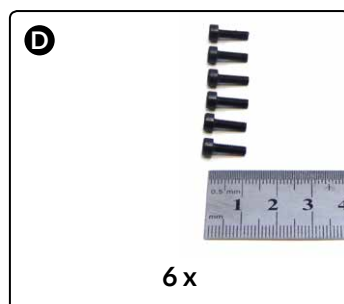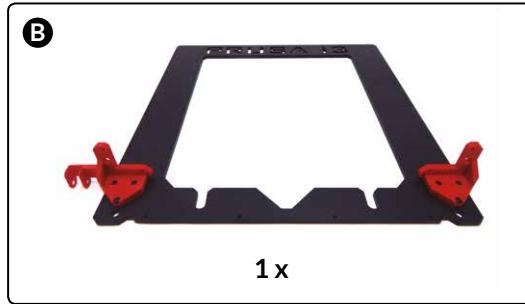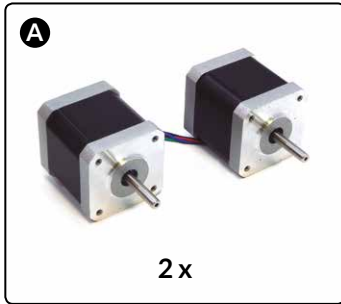
C Aluminium frame

Aluminium frame, powder-coated in black, with"Prusa i3" die-cut into its upper part. It has a recess in its lower part, in the area of the Y axle, to avoid rubbing once the levelling of the base has been finished.

D Screw M3 x 10 mm

D

6 x

1.

2.
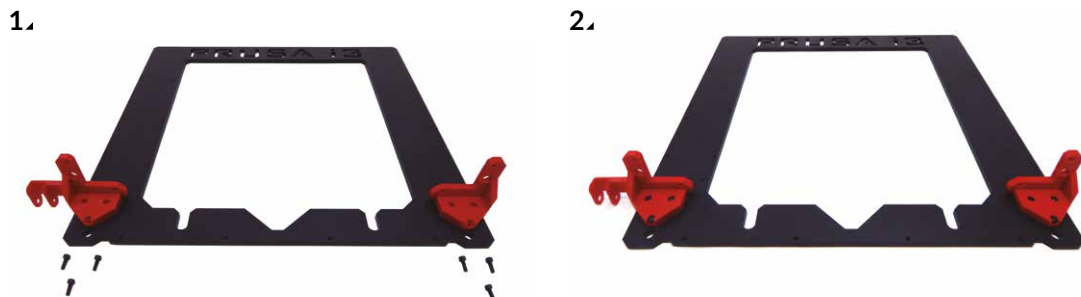
2

Attaching the motors

A

2 x

B

1 x

C

6 x

A **Motor Nema 17**
Nema 17 bipolar step motor (2.5A 1.8 deg/step).
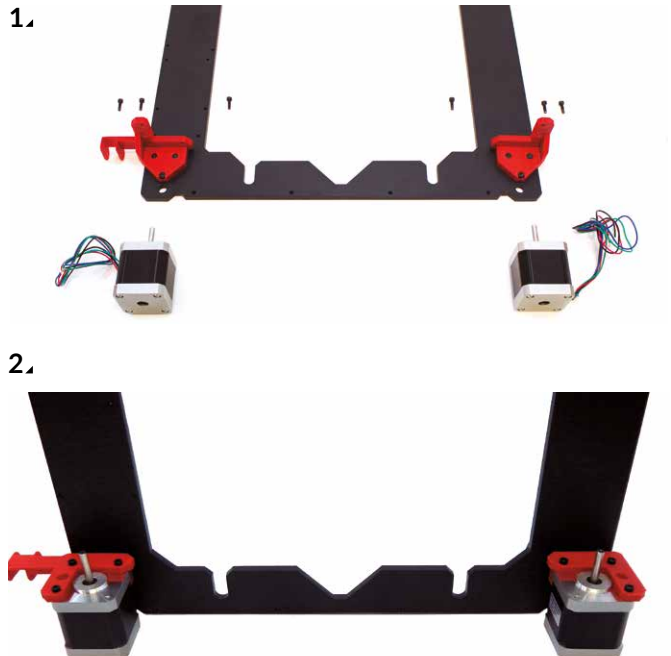
B **Set for step 1**

C **Screw M3 x 10 mm**

Assembly:

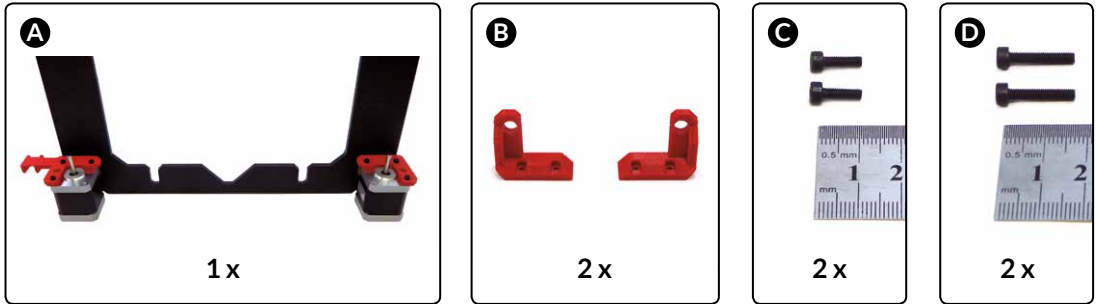Screw the motors to the supports which you assembled in the previous step.

Orientate the motors' cable towards the frame and pass them through the hole

1.

2.

3

Attaching the upper fastening of the smooth rods

A 1 x

B 2 x

C 2 x

D 2 x

A **Set for step 2**

B **Upper support printed parts axle Z**
Printed parts for fixing, in the upper part of the frame, the smooth chrome rods of Ø8 mm x 320 mm corresponding to Axle Z.
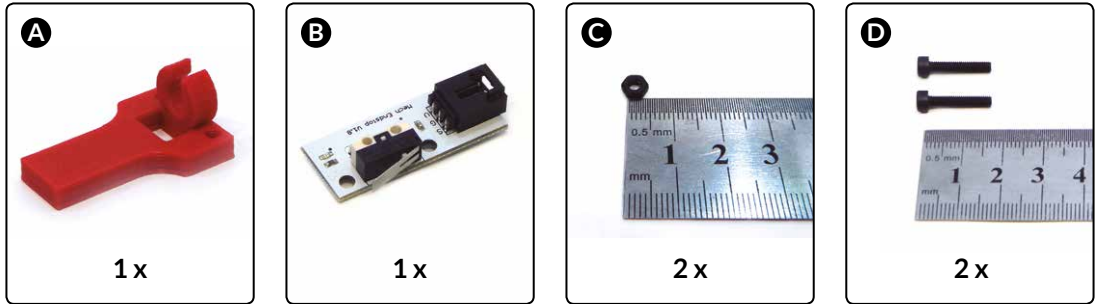
The M3x18 mm screw is used to attach the LCD support to the frame.

C **Screw M3 x 10 mm**

D **Screw M3 x 18 mm**

1.

2.

4

Preparing the end-stop sensor

A

1 x

B

1 x
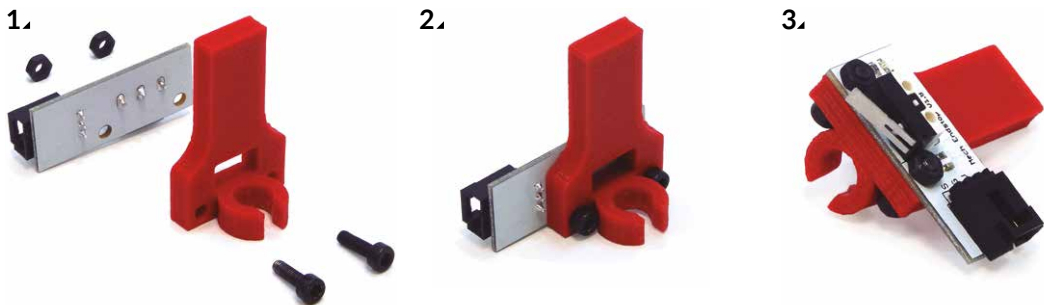
C

2 x

D

2 x

A **End-stop printed part axle Z**
Part to fix the end-stop for its fastening to the smooth rod in Axle Z.

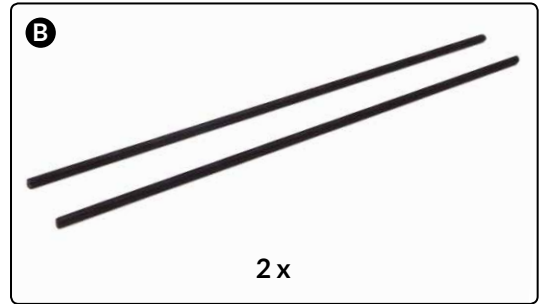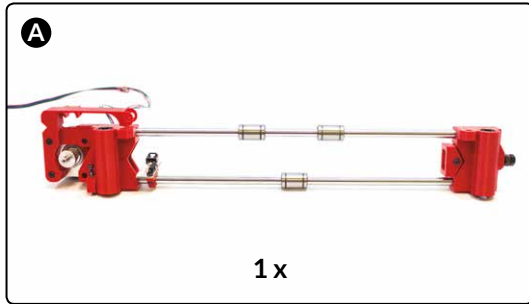**B** **End-stop**
End-stop mounted on a PCB with an LED indicator.

C **Nut M3**

D **Screw M3 x 10 mm**

1.

2.

3.

5

Joining Axle X to Axle Z: inserting threaded rods

A

1 x

B

2 x

A Axle X
B Threaded rod M5 x 300 mm

1.

2.

6

Joining Axle X to Axle Z: inserting smooth rods

A

1 x

B

2 x
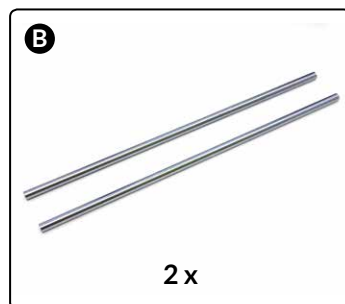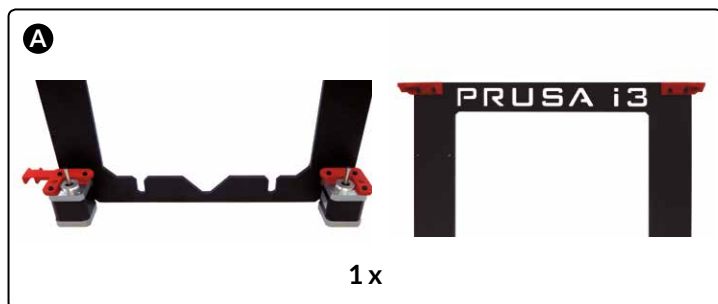
Ⓐ **Set for steps 2 and 3**
Ⓑ **Smooth chrome rod Ø 8 mm x 320 mm**

Assembly:

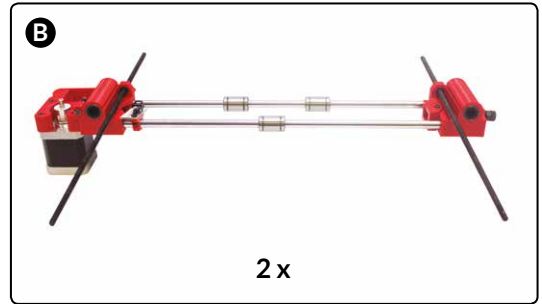Insert the smooth rods so that they join the sets of steps 2 and 3.

File the holes before you insert the rods. Don´t insert them all the way to the bottom.
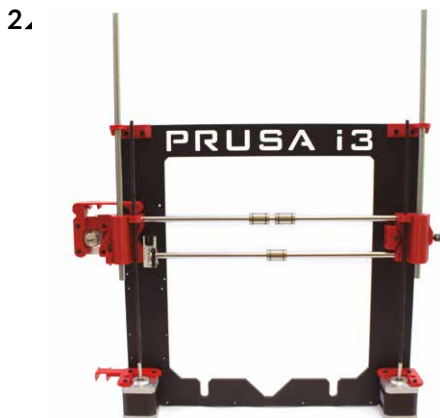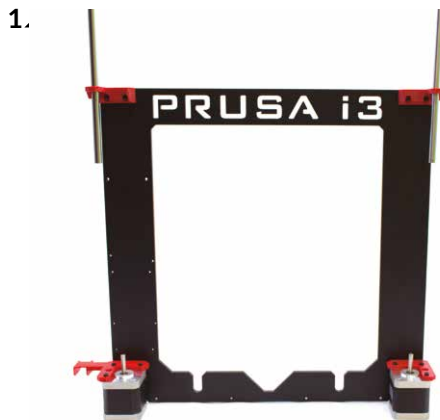
1.

2.

7

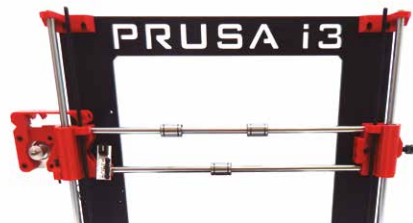## Joint Axle X to Axle Z: joining to Axle X
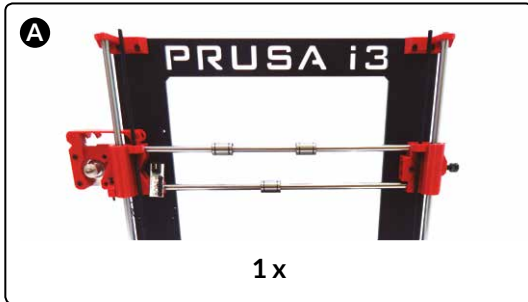
1 x

2 x

Ⓐ Set for step 6

Ⓑ Set for step 5

1.

2.

3.

8

Joining of Axle X to Axle Z: flexible couplings

A

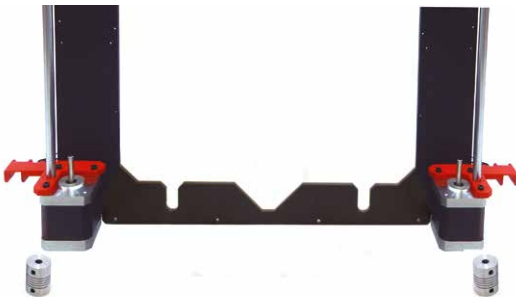PRUSA i3

1 x

B

2 x

A Set for step 7

B Flexible aluminium coupling of 5 to 5 mm
Flexible aluminium couplings of 5 to 5 mm with 4 set screws for adjusting the rods with the 2 mm Allen key.

For this step you need a 2 mm Allen key

1.

Assembly:

Insert the flexible couplings into the axles of the motors, and adjust them with an Allen key (**4**).
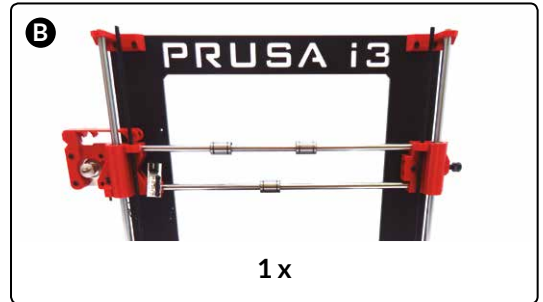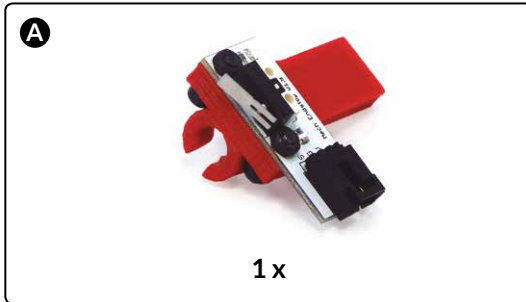
2.

3.

4.

Position the flexible coupling so that the lower set screws hold the motor's axle and the upper ones hold the threaded rod. When the set screws have been tightened, make sure that the threaded rod is fixed to the motor's axle.

9

Joining Axle X to Axle Z: end-stop sensor of Axle Z

A

1 x

B

1 x

A Set for step 4

B Set for step 8

It is advisable to stick the sets for steps 4 and 8 together with adhesive.
Remember that you have to screw the set screw against the flat part of the motor's axle.

1.

2.