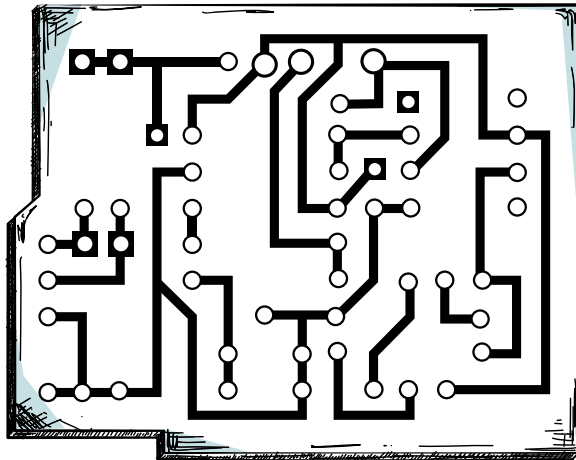


6

Assembling the Electronics

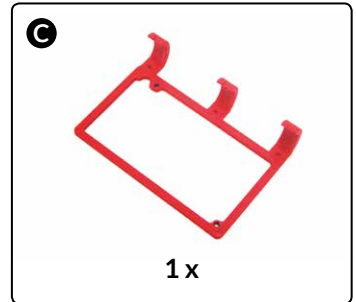
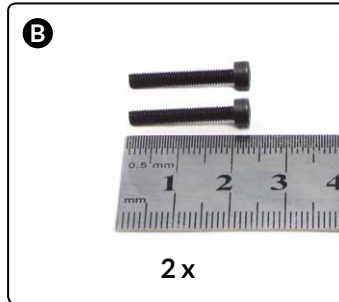
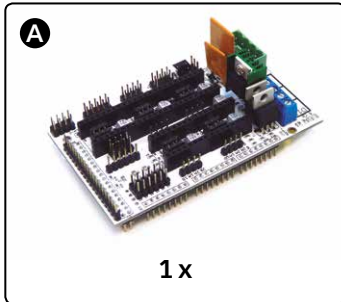


List of components for the Electronics

- 1 x** Ramps 1.4 (with 4 x Stepstick Drivers A4988 mounted)
- 3 x** End-stop
- 1 x** LCD Control Panel
- 1 x** USB cable, type B, 1.8 metres
- 4 x** Cable motor Nema 17
- 2 x** Cable end-stop 40 cm
- 1 x** Cable end-stop 85 cm
- 4 x** Motor Nema 17
- 1 x** Kit of cables for the extruder: Four-strand cable for Nema 17 bipolar step motor (2.5A 1.8 deg/step) with connector JST XHP-6 and 4-pin female connector + two-strand cable for thermistor of the extruder with 2-pin female connector + Cable for fan clamped to with nipple terminal + Cable blower clamped to with nipple terminal + Cable for cartridge heater clamped to with nipple terminal.
- 1 x** Cable prepared for power supply (150 mm of flexible, two-strand, bicolour cable with cross section of 1.5 mm² + Jack Adapter/ connector)
- 1 x** 220 AC 12 DC 100W power supply
- 1 x** Power supply/Network cable
- 1 x** LCD Hinge printed part
- 1 x** Ramp Bracket printed part
- 4 x** Screw M3 x 10 - DIN-912 class 8.8 black
- 2 x** Screw M3 x 12 - DIN-912 class 8.8 black
- 2 x** Screw M3 x 16 - DIN-912 class 8.8 black
- 4 x** Screw M3 x 20 - DIN-912 class 8.8 black
- 2 x** Nut M3 - DIN 934 class 8 black
- 1 x** Thermo-retractable tube of Ø2.5 x 500 mm
- 11 x** Black strap 100 x 2.5 mm
- 1 x** Fan 50 x 50 mm
- 2 x** Igus Cable-carrier chain (25 and 27 links)

1

Installing the RAMPS 1.4



A Ramps 1.4

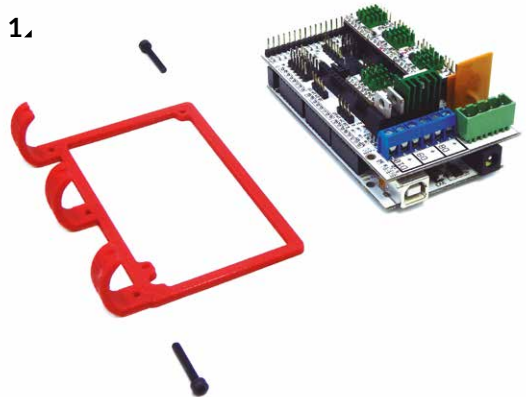
Freaduino Mega 2560 v1.2. Design derived from Arduino Mega 2560 + Ramps 1.4, with dissipator in the MOSFET of the hotbed.

B Screw M3 x 20 mm

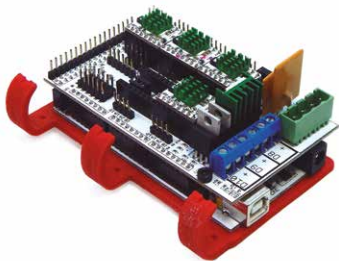
C Ramp Bracket printed part

Bracket to insulate the electronics from the aluminium frame, with three hooks for securing cables with straps.

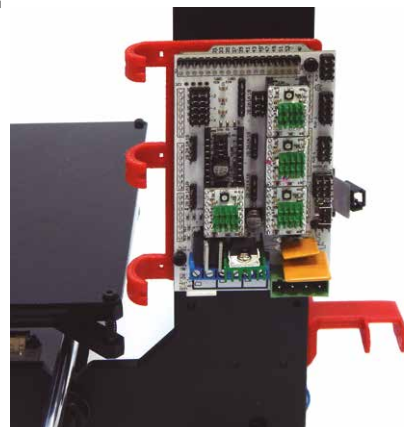
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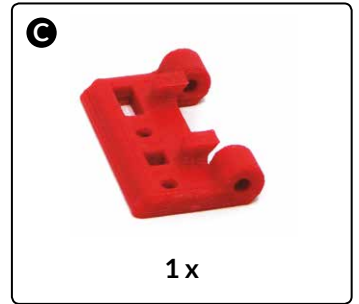
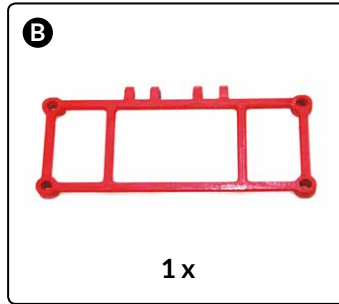
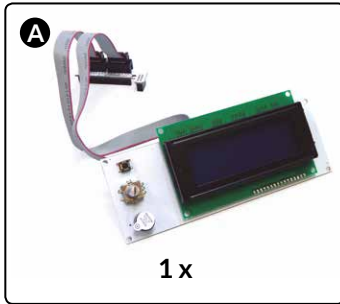


3.



2

Preparing the LCD control panel



A LCD Control Panel

LCD control panel with card-reader for autonomous printing (SD card not included), with 30 cm cables.

B LCD Bracket printed part

Bracket to insulate the electronics from the aluminium frame, with three hooks for securing cables with straps.

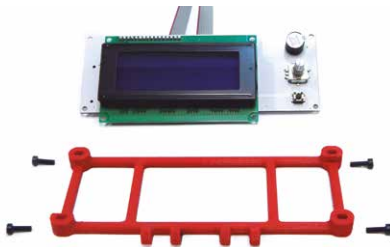
C LCD Hinge printed part

Hinge to support the LCD in the upper part of the aluminium frame.

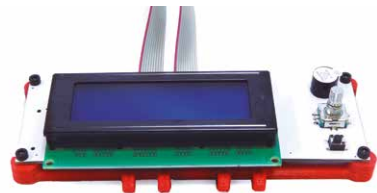
D Screw M3 x 10 mm

E Screw M3 x 20 mm

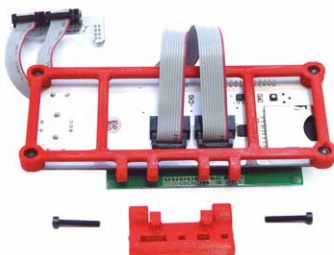
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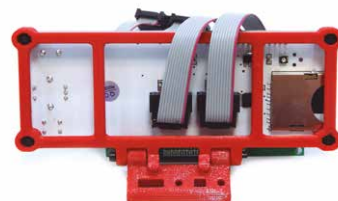
2.



3.

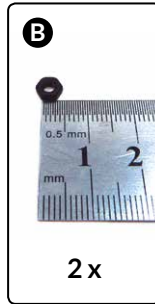
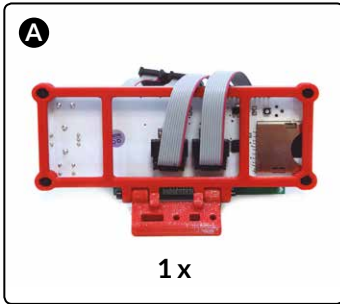


4.



3

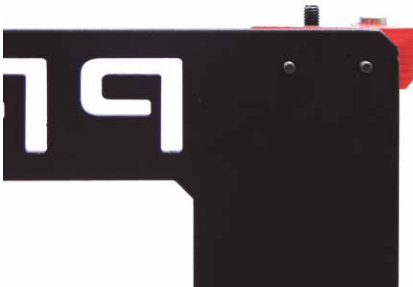
Mounting the LCD control panel onto the frame



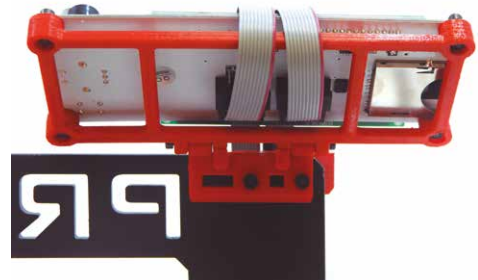
A Set for step 2

B Nut M3

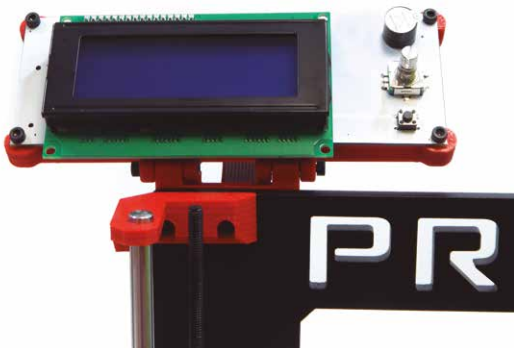
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2.

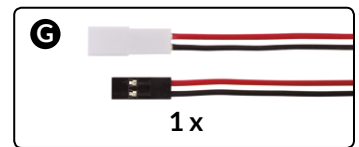
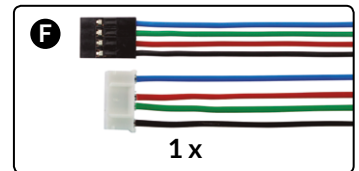
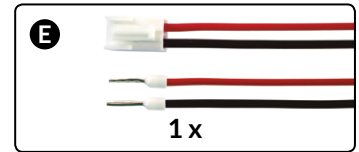
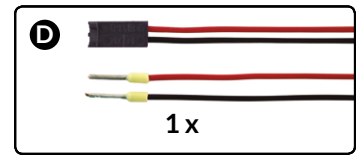
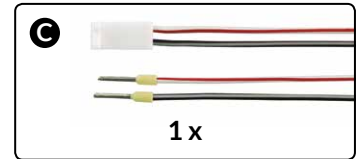
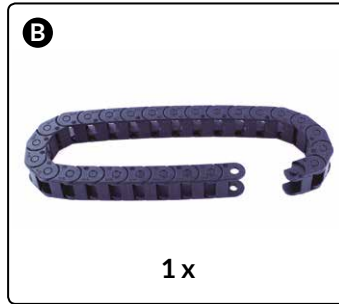


3.



4

Putting the cables in the chains of Axle X and Axle Z



A 25-link Chain

Igus 045.10.018 Cable-carrier chain (external dimensions 15 x 10 mm)

B 27-link Chain

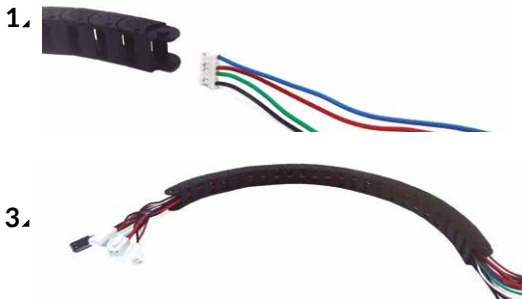
Igus 045.10.018 Cable-carrier chain (external dimensions 15 x 10 mm)

Kit of cables for extruder

- C** Cable for axial blower
- D** Cable for axial fan
- E** Cable for cartridge heater
- F** Nema motor cable
- G** Thermistor extruder cable

Assembly:

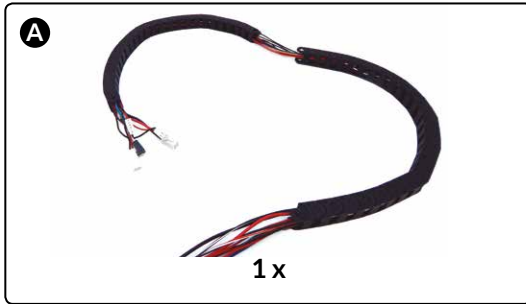
First, insert the cables into the 25-link chain of Axle X (2 and 3). Then insert them into the 27-link chain of Axle Z (4).



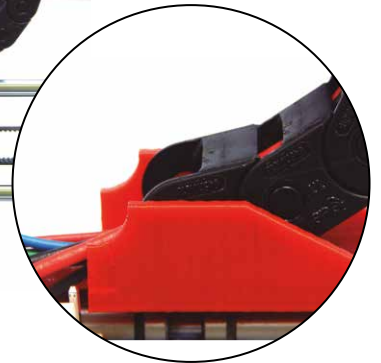
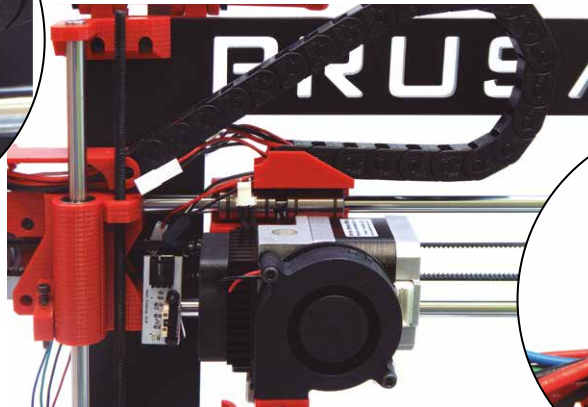
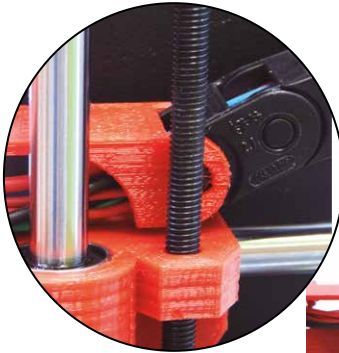
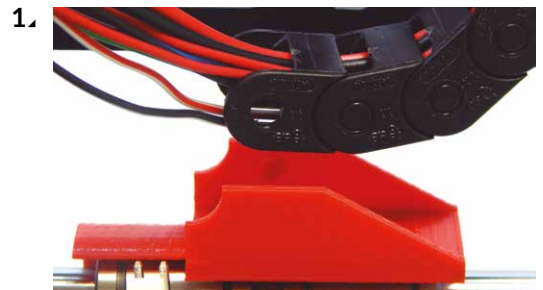
To make the task easier, insert the cables one by one or wrap them with adhesive tape. Insert the cable of the extruder motor first.

5

Fitting the chain of Axle X



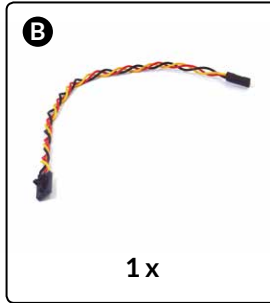
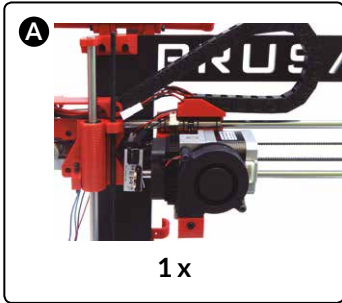
A Chain of Axle X with cables



The 25-link chain links the carriage of Axle X with the left-hand end of Axle X.

6

Inserting the cables of Axle Z and fitting the carriage of Axle Z



A Set for step 5

B End-stop cable of 85 cm

3-strand cable for the end-stop, with 3-pin female click connector.

Assembly:

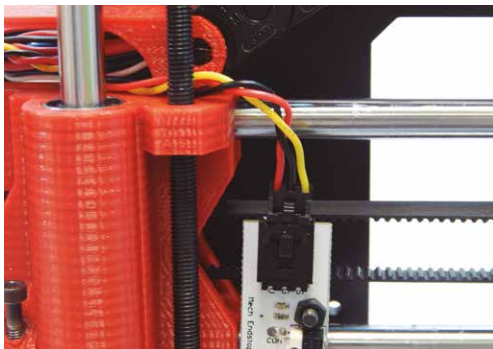
Insert, through the chain of Axle Z, the cables of the motor (1) and of the end-stop sensor of Axle X (2).

The 27-link chain links the left-hand end of Axle X (4) with the lower left-hand part of Axle Z (3).

1.



2.



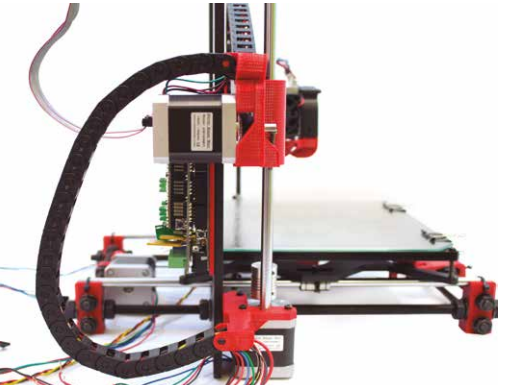
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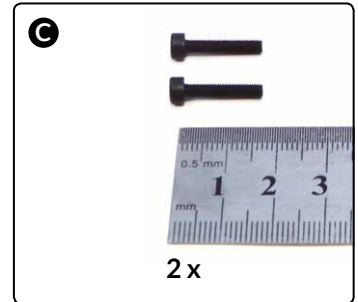
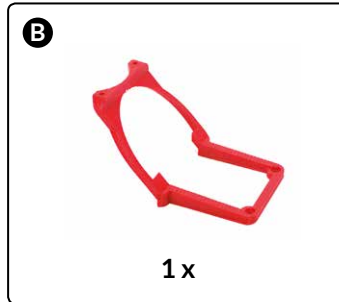
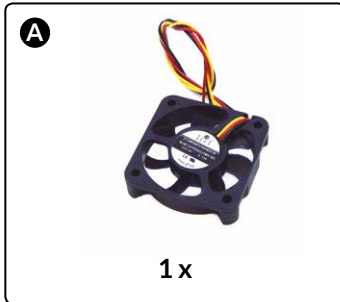


5.



7

Preparing the fan



A Fan 50 x 50 mm

12V DC 0.13A.

B Fan support printed part

Support for the 50 x 50 mm fan, positioned above the electronics for correct cooling.

C Screw M3 x 16 mm

1.

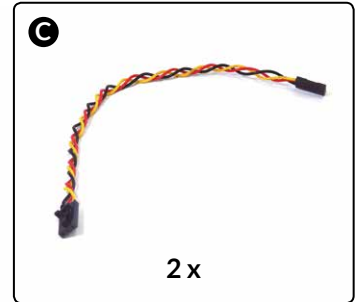
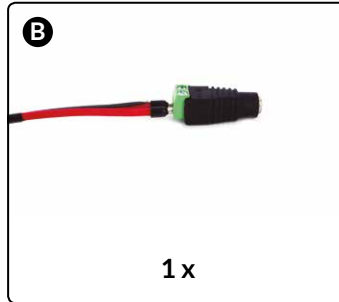
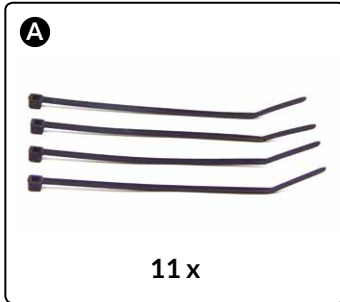


2.



8

Connecting and guiding the cables



A Black strap 100 x 2.5 mm

B Prepared power-supply cable

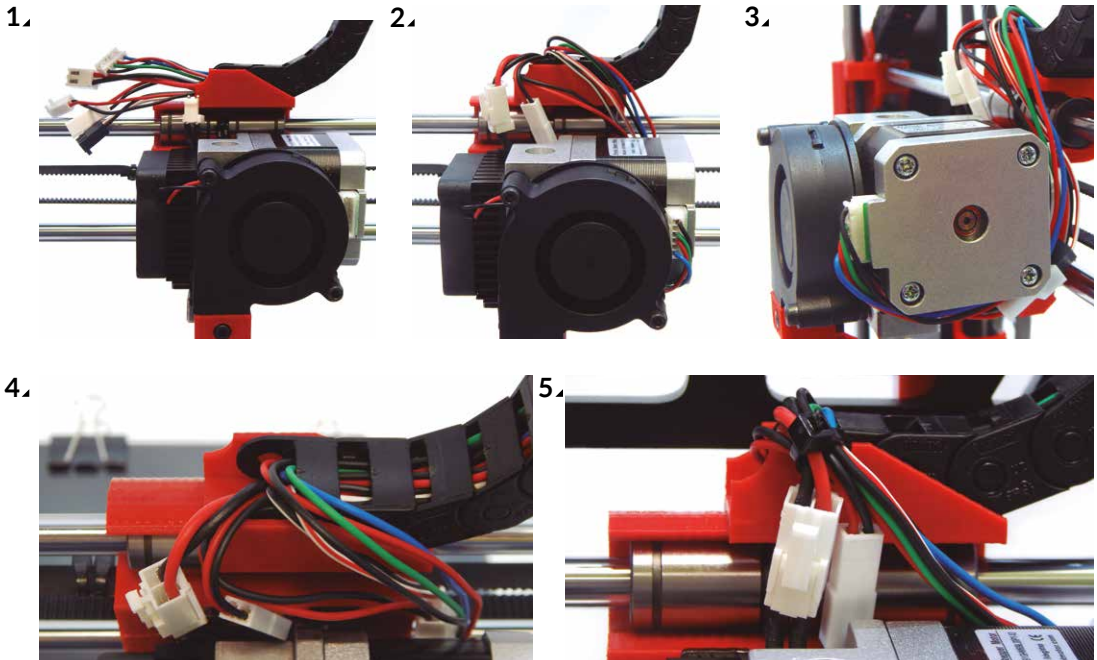
C 40 cm end-stop cable

3-strand cable for end-stop with 3-pin, female click connector.

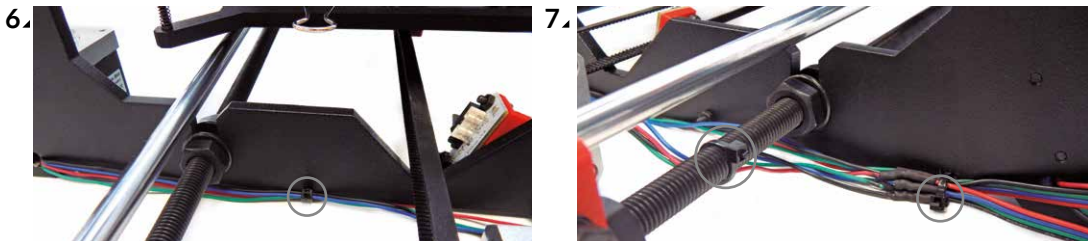
Assembly:

Connect the extruder cables (2) and then secure them with a strap (5). Also secure the motor cables with straps, and connect them to the plate.

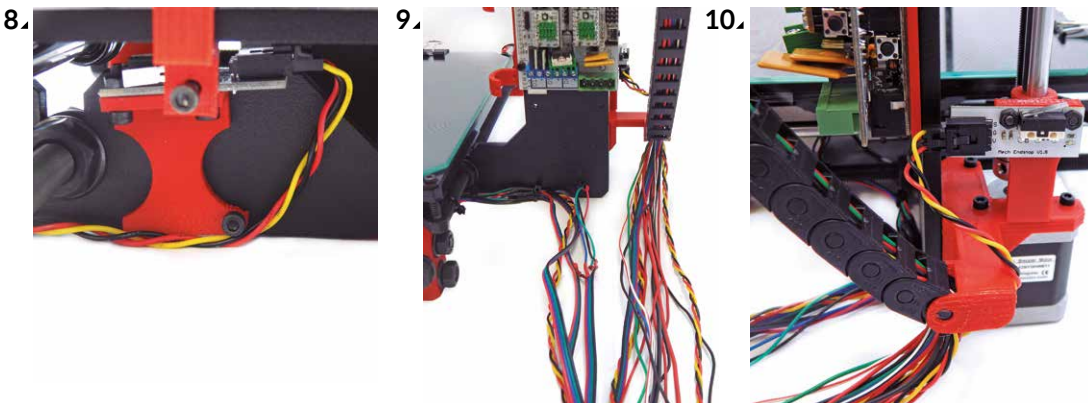
Connection of the extruder



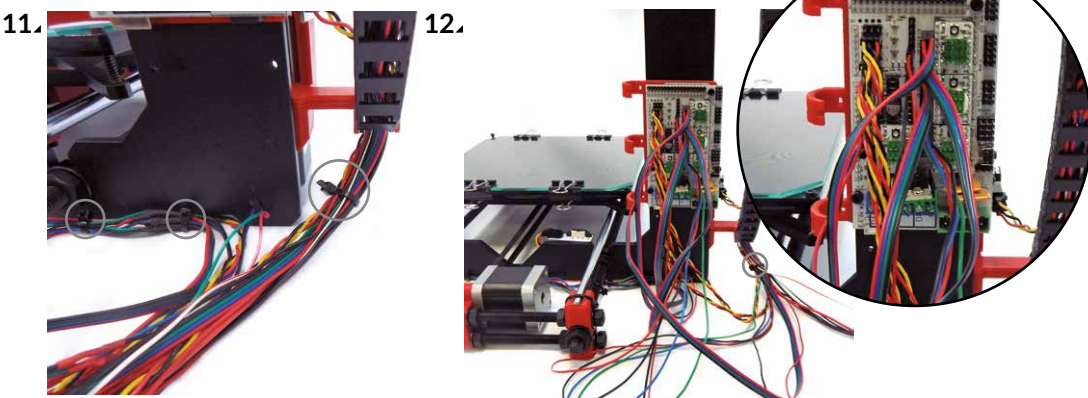
Guide to the cables of motors Z (right) and Y



Guide to the end-stop cables

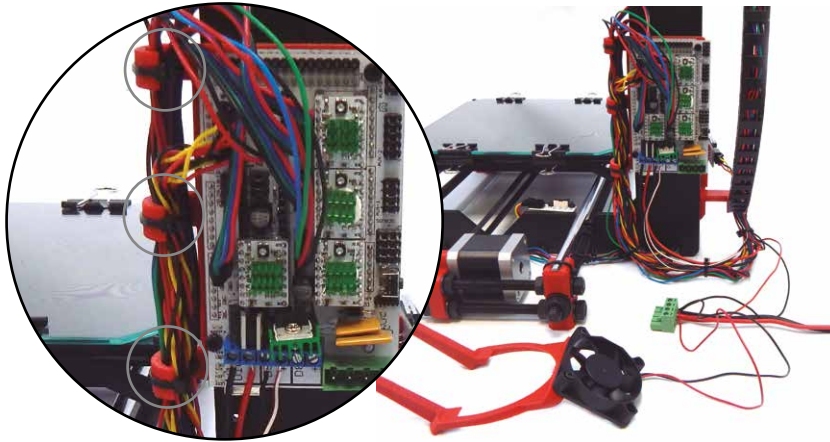


Guide to cables and their connection into the plate

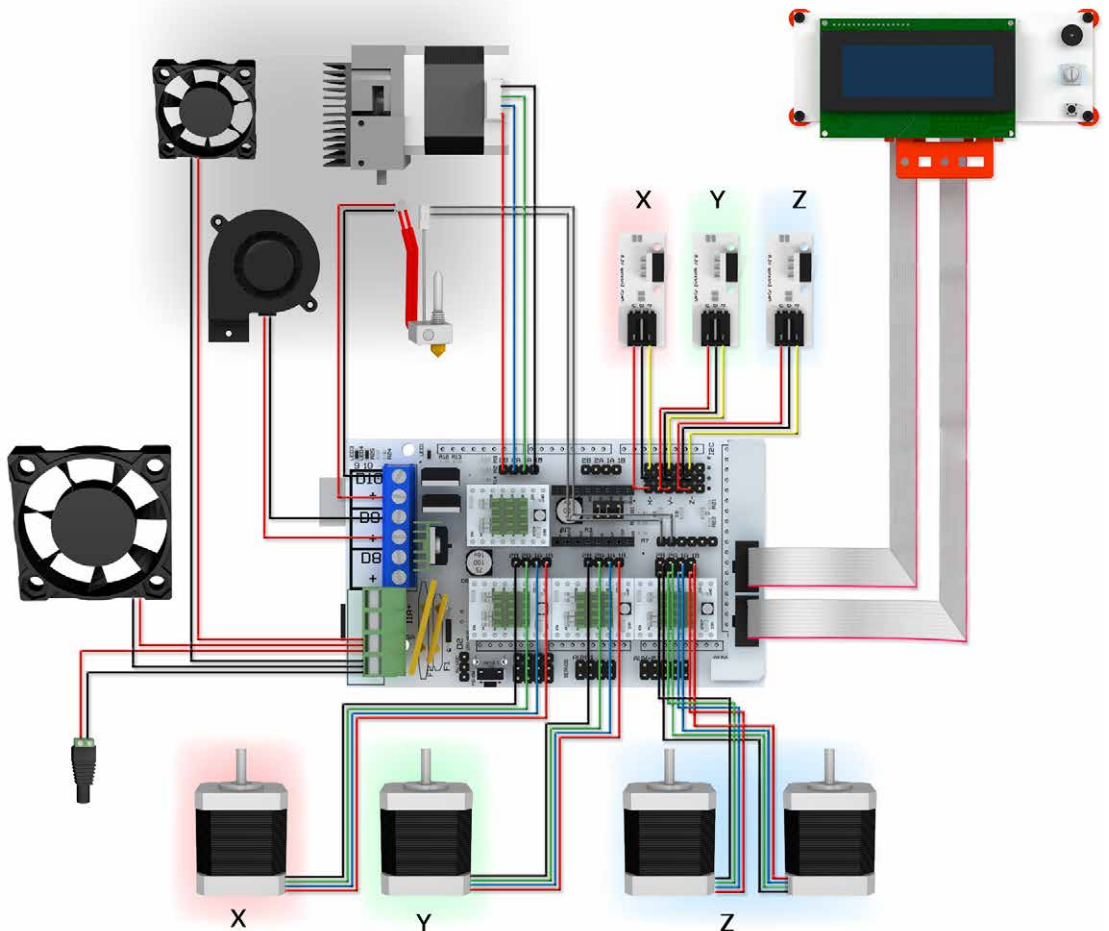


Guide the cables through the printed part which holds the RAMPS and secure them with the straps. Connect the fan cable and power supply cable in the clamp of the plate.

13.



Connection diagram for Ramps 1.4



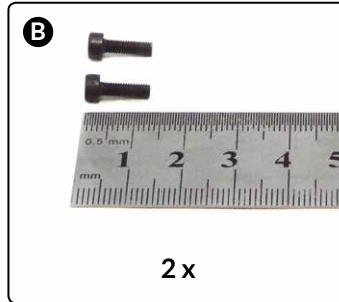
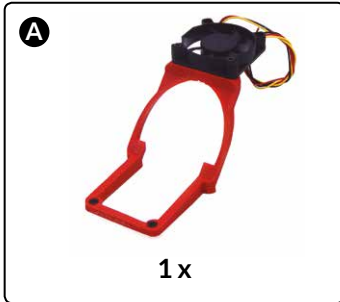
Be careful, because a bad connection of the end-stop connectors could damage the plate.



When connecting the motors to the plate, check the orientation of the black cable.

9

Fitting the fan

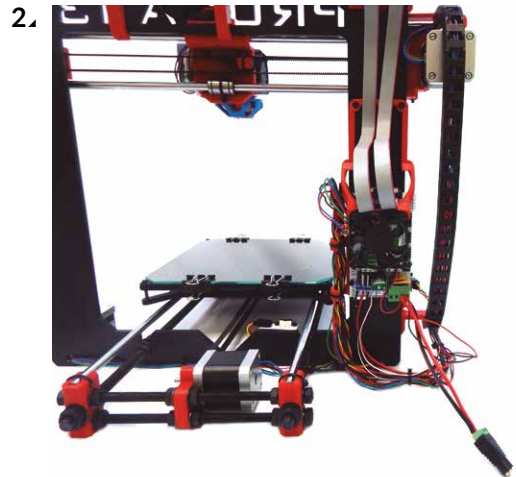
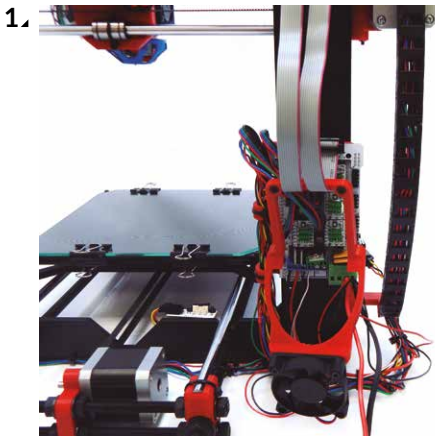


A Set for step 8

B Screw M3 x 12 mm

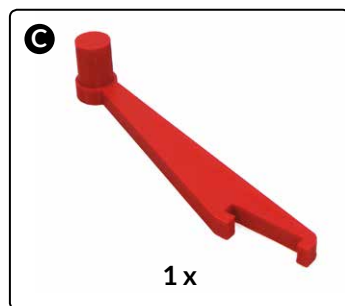
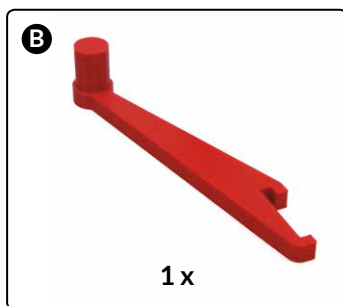
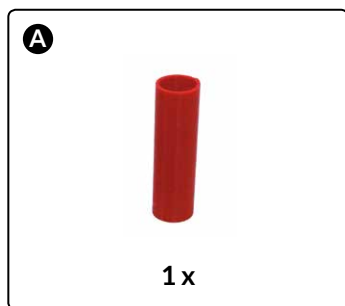
Assembly:

Before fitting the fan, disconnect the LCD control panel from the RAMPS and pass it through the hole in the part.



10

Fitting of the support for the spool of filament



1 Right-hand filament support printed part

Right-hand support for securing the spool of filament to the plate.

2 Left-hand filament support printed part

Left-hand support for securing the spool of filament to the plate

3 Support for connection filament printed part

Connecting piece and axis of rotation of the spool of filament for support on the frame.

