BONDTECH

Assembly & Installation Guide ULTIMAKER 2.85/3.0

The Bondtech QR Extruder for 2.85/3.0 mm filament for use as a Bowden or a direct Extruder. The extruder uses high-quality industrial pneumatic push-fit fittings for attaching the bowden tube. It has also thread inserts to have a strong connection of the fasteners. The mount for the hotend is a standard "Groovemount" that makes it possible to use the E3D hotends aswell as others following this standard.

This new revolution in design utilizes the **Bondtech Dual Drive Technology** with precision CNC-manufactured parts which gives the markets best performance and reliability.

Thanks for your support making this project a reality!

Contents

Mechanical & Electrical Installation

This guide shows the installation on a Ultimaker 2 Extended.

1. Start by removing the material from your printer with selecting "Material", "Change", after the filament is removed, power off the printer.
2. Rotate the printer so you can access the side and the rear side.
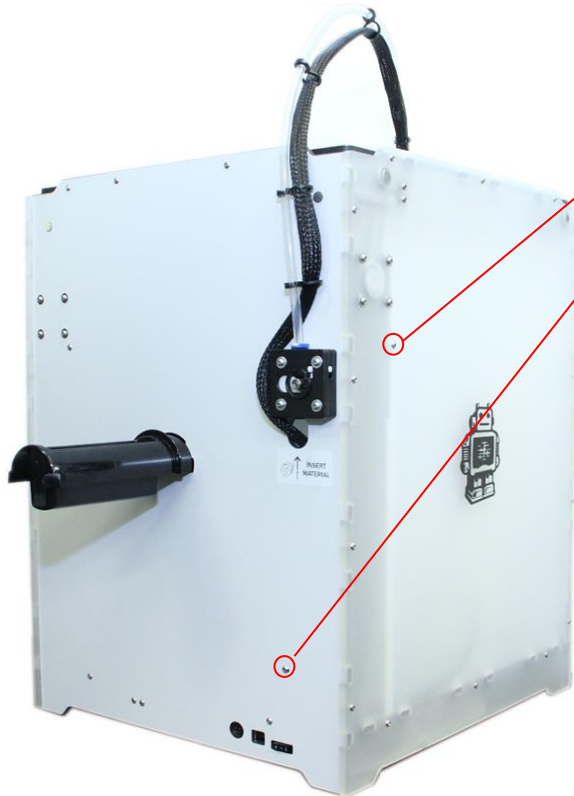
Loosen M3-screws for the inside cable cover and remove the cable cover.

Remove the holder for the spool.
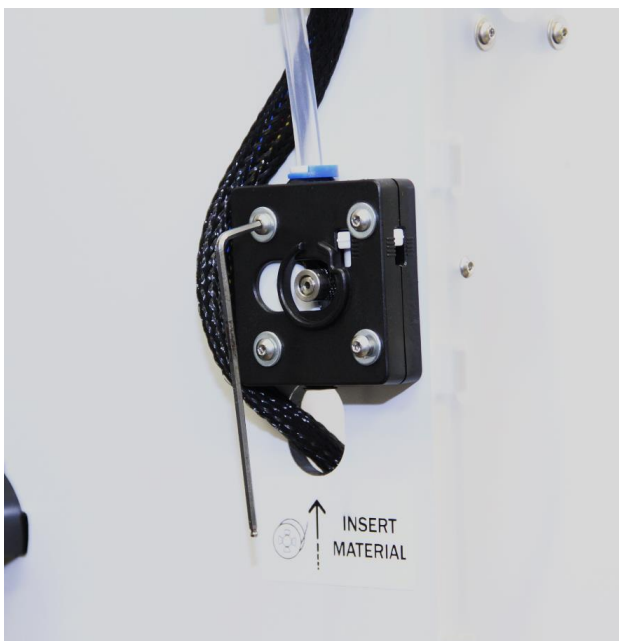
Loosen 4 x M3-screws that holds the original extruder and motor. Support the motor from the inside so it does not fall down and damages the build plate. Remove the blue bowden clip and remove the bowden tube.
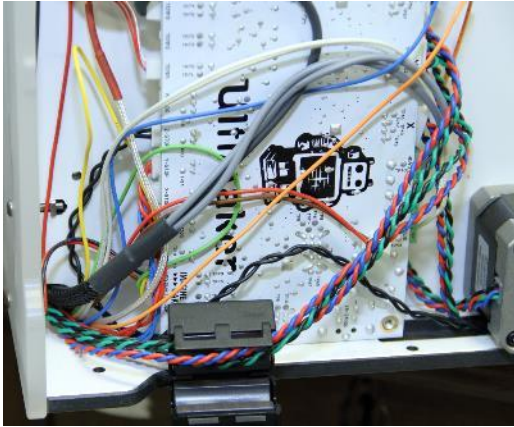
INSERT MATERIAL
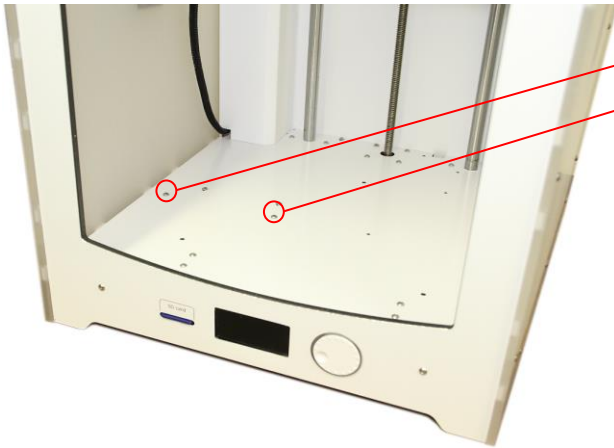
Loosen 2 x M3-screws that holds the cover for the controller board.

Use a spanner to hold the nut from the underside of the printer.
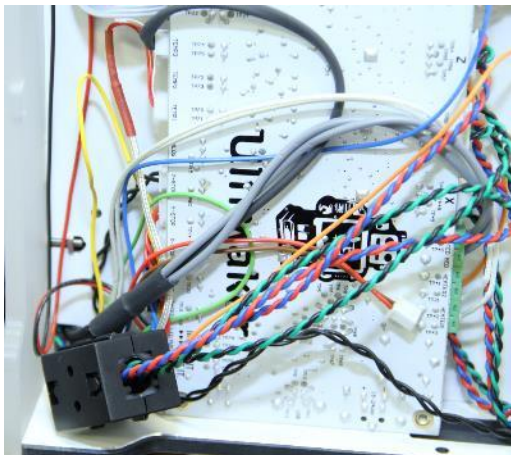
This reveals the controller board.

Open the ferrite core and place it aside.

Disconnect the old extruder cable on the controller.

Route the new cable from the hole on the back plate through the printer and down to the controller, connect the cable in the EXT1 port (for single extruder)

Place the stepper cables inside the ferrite core and close it.

Install the cover for the controller board.

Motor-side	Controller-side
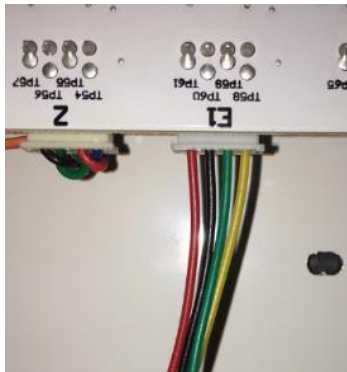
Make sure that the wires on the cable is connected according to the photo

Place the the damping plate and the bottom part of the holder against the rear back plate and insert the M3x20 mm bolts through the mount and into the chassis

Dampening plate

Bottom mount

M3x20 screw
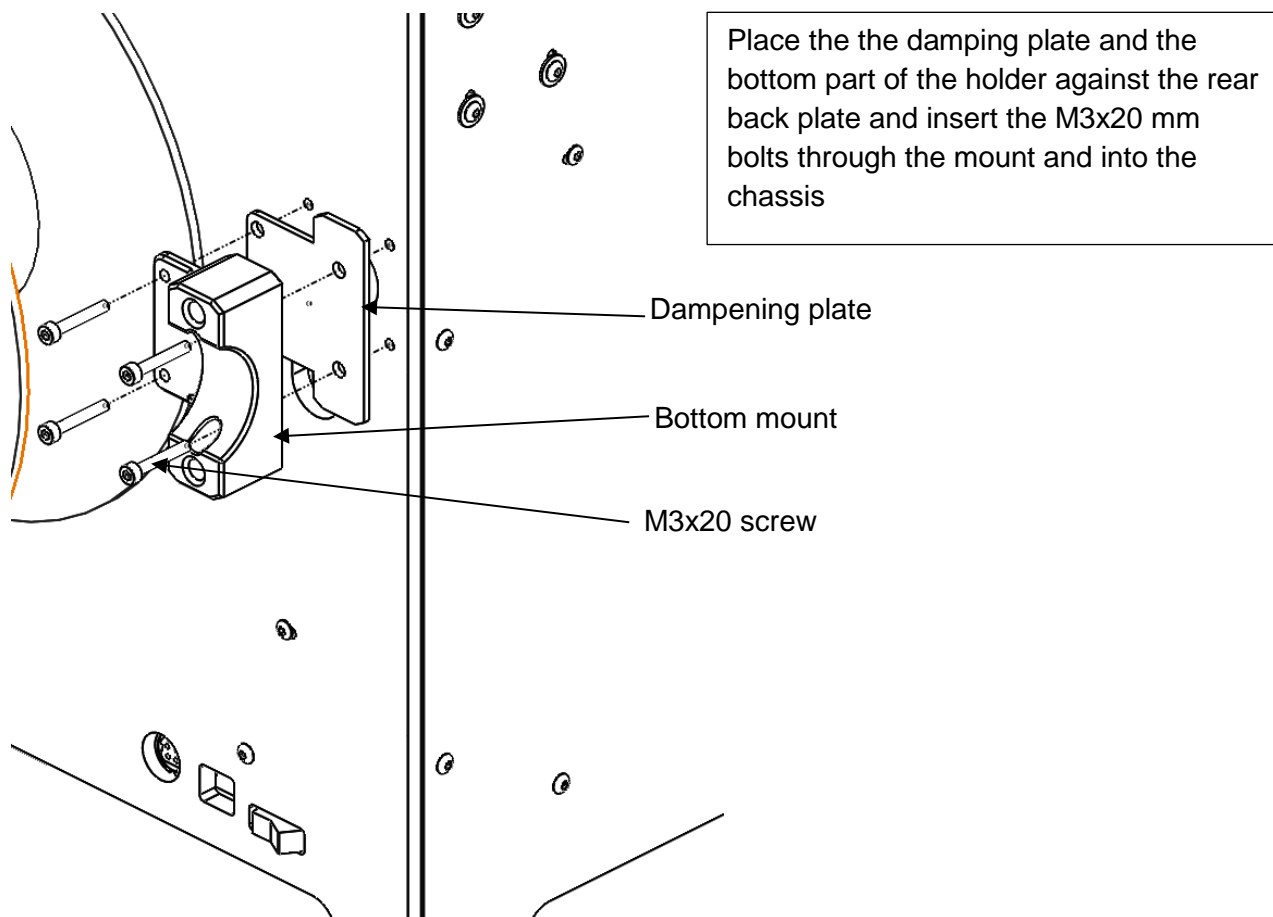
Use a washer and a M3 nut on the inside to secure the mounting screws.
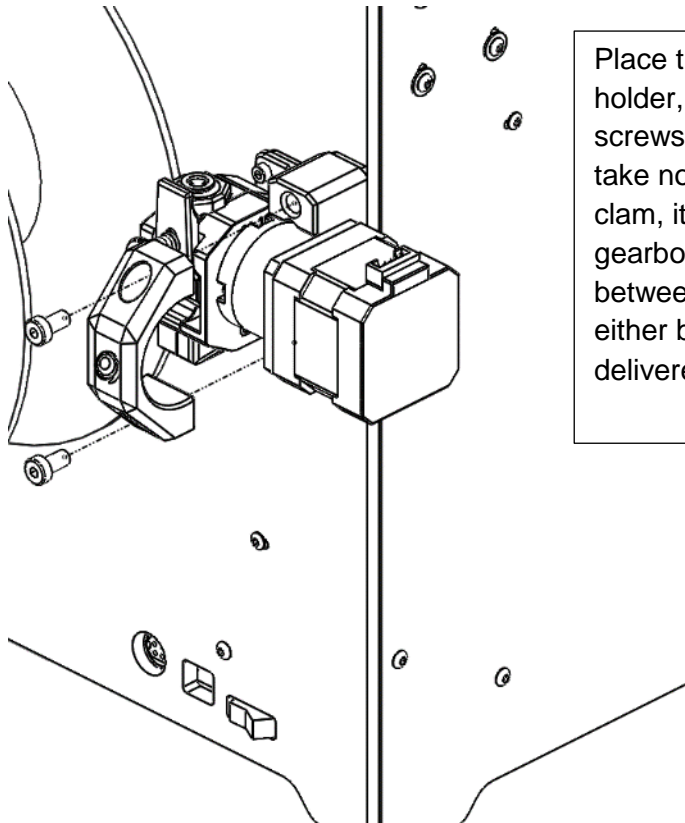
Place the Bondtech Extruder in the holder, use the top-clamp and the 2 M5 screws to secure the extruder, please take not of the orienting tab of the top clam, it shall fit inside the cutout on the gearbox. Use the black foam insulator between the motor and the mount, it can either be installed on the motor or delivered separately.

Connect the cable and the bowden tube, make sure the bowden tube is pressed down all the way into the extruder housing, place the clip underneath the plastic collar to prevent movement of the bowden tube.

Remount the cable cover from the inside and secure it with the two m3 screws. Make sure that no cable is pinched between the cover and the plates.

Re-attach the spool holder.

Software Configuration

The Ultimakers firmware needs to be changed since the new feeder uses another E-step value and also the speed for loading/unloading material needs to be lowered in order not to stall the new motor. The reason for this is that the Bondtech QR uses a planetary gearbox with 5.18:1 gearing ratio making the motor turn faster than standard, this gives the advantage that the extrusion will have higher resolution and the extruder gets much stronger in order to push the material with higher force.

Below you will find links to the latest firmware that is based on original Ultimaker2.1 firmware.
The following is changed when compared to the original.
E-step is now 492.45, Loading speed is 50 mm/sec, Rotation direction is as for UM2 (ungeared)

Please make sure that you use the correct version for Ultimaker2 or Ultimaker2 Extended, if you load the firmware for Ultimaker2 Extended into a Ultimaker 2 you will crash the head into the printing surface.

Also use Cura version 15.04.06 to upload the firmware, later versions does not upload it to the printer. It is available here: https://ultimaker.com/en/products/ultimaker-cura-software/list

Firmware for Bondtech QR for Ultimaker2
Firmware for Bondtech QR for Ultimaker2 with reversed rotation direction

Firmware for Bondtech QR for Ultimaker2 Extended

Once you have downloaded the firmware use Cura to install the new custom firmware in your printer. By using the function Machine/install custom firmware and select the firmware file you have downloaded.

After the firmware has been installed you need to perform a "Factory reset" on the printer to ensure that the printer uses the new values in the firmware.

 -> ->

Aft the restore to factory settings is complete you will have to level your build plate and load material (the same procedure as when the printer was new)

After this is completed enter the Advanced menu and navigate to motion settings where you need to change the Current for the Extruder to 1000 mA, max current is 1200 mA for this motor but in order to keep the motor cooler we recommend to use 1000 mA.

Simplify3D

If you are using Simplify3D as a slicer you will need to change a line in the start script section that say M907 E1450 to M907 E1000.

If you are printing a part with extremely much retracts the motor can get quite hot, in order to lower the temperature of the stepper motor you can lower the current to 1000 mA, the pushing force of the extruder is more than enough also on this setting.

Good luck with your Bondtech Extruder!

If you have any questions, please contact us by email or telephone.

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