

*QUICK START GUIDE*  
**LGX® PRO METAL**



## QUICK START GUIDE

Read this Quick Start Guide for proper extruder installation.



Each LGX® Pro Metal extruder is supplied with:

- 1x LGX® Pro Metal 1.75mm feeder;
- 1x Custom Nema17 30mm pancake stepper motor;
- 1x Metal Push-in fitting M7 4mm;
- 1x 2mm Hex Key (recommended tool);
- 1x Product Line Information Brochure;
- 1x Powered By Bondtech sticker.

Also shipping with additional accessories:

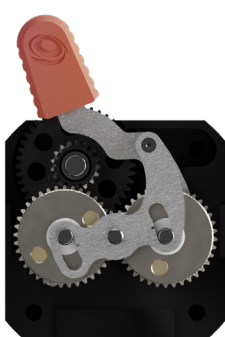
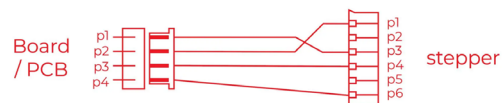
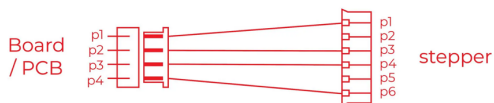
- 4x M3x23 mm Stud with 5mm Hex with M3x4 thread;
- 30mm PTFE tube to use in the Direct Drive Interface Plug.

## CONNECTION

Do not connect a LGX® PRO METAL stepper motor to a printer's cable without checking the wires and pins of the connection cable. Not all printers are ready for a direct connection with the motor. Some use stepper drivers with no protection and this may damage them.

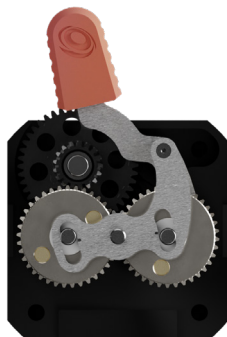
Before connecting a LGX® PRO METAL to any 3D printer check if the connector pins are wired as shown below:

After start of service, if the LGX® PRO METAL is turning in the wrong direction, swap the top (or bottom) pair of wires.



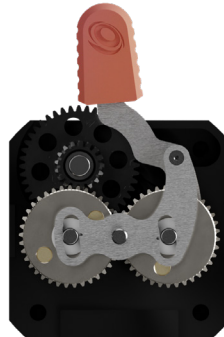
### Position 0

Load or unload filament without pressure from the drivegears.



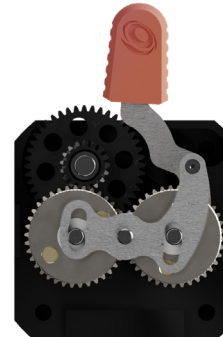
### Position 1

For rigid materials.



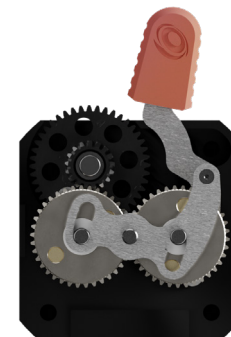
### Position 2

For harder rigid materials, when you need more grip. Or for semi-flexibles >95A.



### Position 3



For flexible materials softer than 95A.





### Position 4

For very flexible materials softer than 85A.

## MOUNTING HOLES

For the LGX PRO METAL offers eight different mounting hole locations for different uses. Side holes  may be used for peripherals such as accelerometers or toolhead boards and in many cases also for mounting the extruder to a carriage while the interface holes  are intended for mounting a Slice Engineering hotend like Mosquito or Mosquito Magnum+.

The bottom M3 holes  are ideal for mounting the LGX PRO METAL to a carriage.

The front holes  may also be used for mounting as well as the motor back holes, using the included hex studs.



## MACHINE CONFIGURATION

For the LGX PRO METAL to work on printers where current is set with trim pots you need to adjust a couple of settings regarding the extruder system.

### VREF

This will differ depending on your specific drivers. Aim for about 550-650 mV RMS.

### E steps/mm

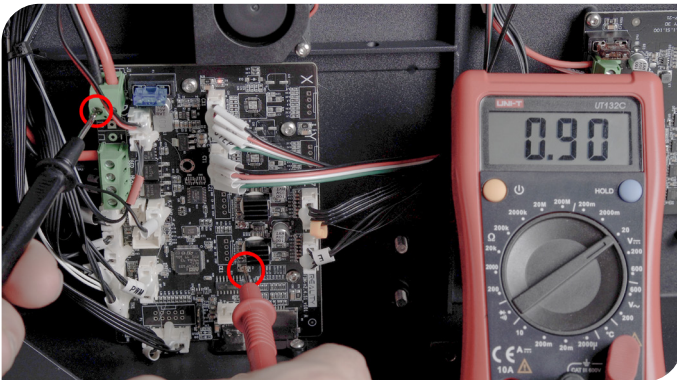
400 for **1.75** | 435 for **2.85**

This is set by using the *Settings.gcode* file or with the following *gcode* sent in pronterface:

```
M92 E400 ; set esteps 1.75  
M500 ; save esteps
```

Alternatively for LGX 2.85

```
M92 E435 ; set esteps 2.85  
M500 ; save esteps
```



Tuning the VREF, an example

## KLIPPER CONFIGURATION

Below we have listed the common Klipper parameters for LGX PRO METAL

### Rotation Distance for LGX 1.75

7.805

This is set in your [extruder] section in your *cfg* in Klipper

```
rotation_distance: 7.805  
#gear_ratio: #not used  
run_current: 0.6  
#hold_current: #not used
```

### Rotation Distance for LGX 2.85

7.356

This is set in your [extruder] section in your *cfg* in Klipper

```
rotation_distance: 7.356  
#gear_ratio: #not used  
run_current: 0.6  
#hold_current: #not used
```

## SLICER CONFIGURATION

When using the LGX PRO METAL for the first time, verify the retraction parameters in your slicer. For larger nozzles than 0.40 mm you may need to add length to this.

35 mm/s

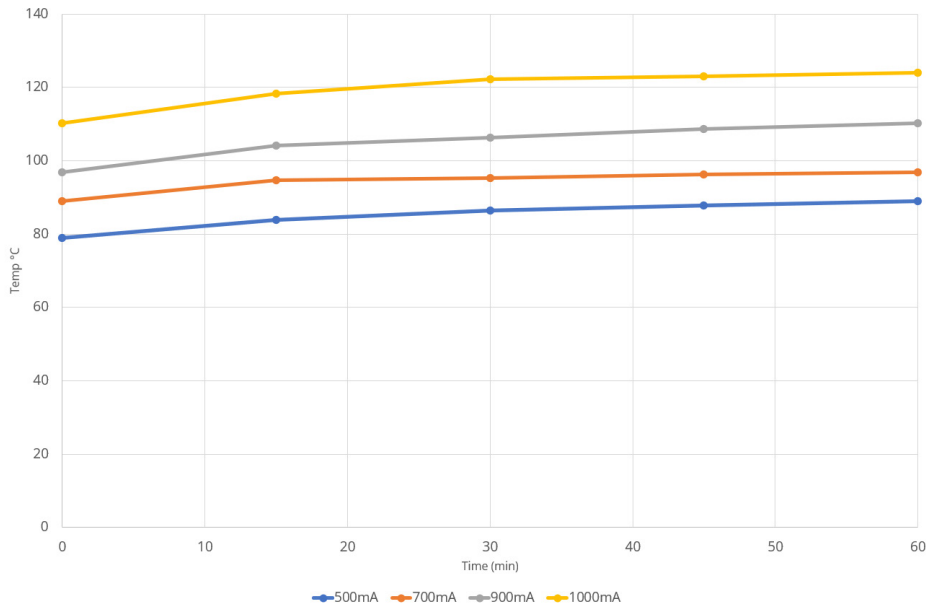
0.6 mm length

If these settings still gives you stringing, we suggest you dry your filament and calibrate your extrusion multiplier since that is often the root cause of stringing when retraction has these settings.

## KEEPING THE MOTOR COOL

While we do recommend using a certain current range in order to make sure the extruder has plenty pushing force, it's also an important consideration to be made when using the extruder in printers with heated chambers. Since the motor has some inherent self heating you may need to dial back the current in order to make sure the motor doesn't overheat..

Motor temp - 77-79°C Chamber



The graph shown here is displaying the motor temperatures at different current levels at idle operation in a heated chamber. When running, the motor will become hotter depending on how much pushing force it has to exert.

Please monitor your motor temperature and adjust current accordingly. We recommend keeping the motor outer casing below 105°C in order to make sure all components remain operational.

Example: 90°C chamber using 600mA would result in about 15°C self heating when printing. This would result in a motor casing at 105°C.

## TAKE GOOD CARE OF IT

Every 6 months, or sooner if you have a higher than 15h per week average usage, perform the following maintenance operations:

1. With a tooth brush and alcohol:
  - a. Clean the double gear and the drive gears
  - b. Clean the needle bearings
2. With a fine brush and lubricant
  - a. Lubricate the needle bearings
3. With compressed air
  - a. Blow the housing plastic parts to remove dust and dirt particles

## HOW TO GET HELP

We are available to help you with any questions or issues you may have. Simply go to our website where you can access our customer support and send us your questions or follow the provided link:

*[https://www.bondtech.se/contact/#tab\\_technical-support-requests](https://www.bondtech.se/contact/#tab_technical-support-requests)*

