

## Manual for FIXtruder XL version 1.1

- Additions: hopper attachment, new cooler type, extra vents, screw coupler, extra cooling button, two mesh filter washers
  - Improvements: strengthening of the gears of the gearbox, reinforcement of the fastening of the small gear, reduction of the gap in the loading area
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## INSTRUCTION MANUAL

(translation of the original instructions)

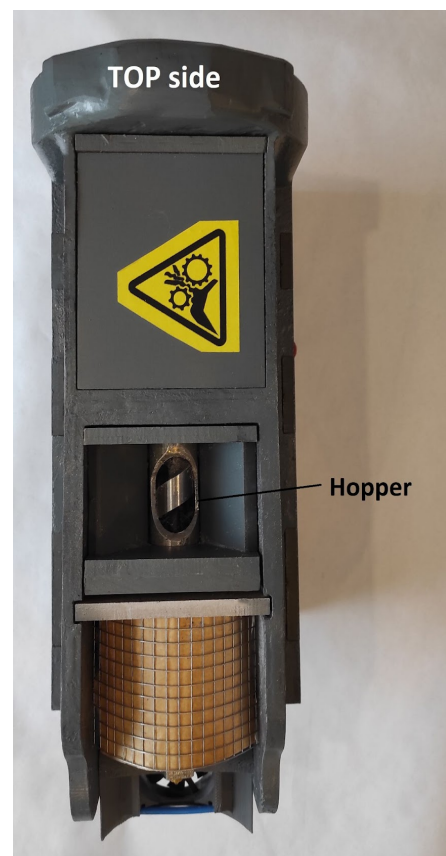
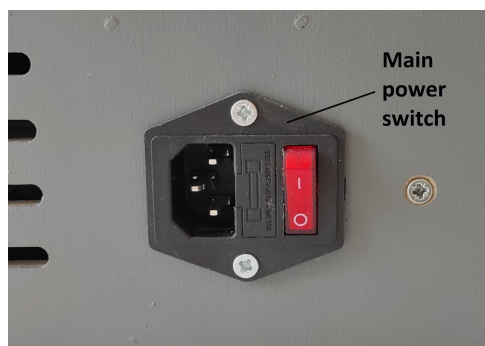


## SAFETY WARNINGS AND SAFETY INSTRUCTIONS

For successful plastic recycling, FIXstruder XL operates at high temperature, high pressure, and high torque. At the same time, some processed polymers can be potentially toxic during thermal decomposition. Therefore, when working with FIXstruder XL, follow the safety rules:

- Work in a ventilated area.
- Install smoke and carbon monoxide sensors.
- Wear protective glasses, gloves, and clothing.
- Do not open the working FIXstruder XL.
- Do not touch the rotating parts of the working FIXstruder XL.
- Always turn off the power supply if you need to check the internal parts of the FIXstruder XL.
- **Do not leave the working FIXstruder XL unattended!**
- Learn the basics of working with the materials that you recycle.

- **Always use a grounded socket!**
- Don't change the settings of the PID controller! By doing this, the safety of the extruder is not guaranteed.



## OPERATING INSTRUCTIONS

If you are going to extrude a rod without using a winder, then place FIXstruder XL so that the nozzle is about 1.5 meters from the floor.

1. Turn on the Main power switch.
2. Set the desired temperature on the PID controller.
  - \* Approximate temperatures are: ABS - 210-240°C, PLA - 210°C (add PLA pellets to shredded PLA plastic at a ratio of about 50/50)
  - \* When switching from one type of plastic to another, remove the remaining plastic from the barrel, clean the nozzle, and change the mesh.
3. Avoid high temperatures. Select the temperature individually for each type of plastic.
4. After the nozzle reaches the desired temperature, wait for about 5-10 minutes for the plastic remaining inside the nozzle to completely melt.
5. Fill the plastic into the hopper.
6. Turn on the motor.
7. Turn on the cooling fan.
  - \* Some types of plastic may not require cooling during extrusion.
8. At the end of the work, try to empty the nozzle tube from the plastic as much as possible by allowing FIXstruder XL to work empty for about 20 minutes, and then turn it off.

## MOTOR OVERLOAD PROTECTION

By default, the extruder motor is configured for safe operation. Any increase in the output voltage power can cause a breakdown of the gearbox or the connection of the feed screw.

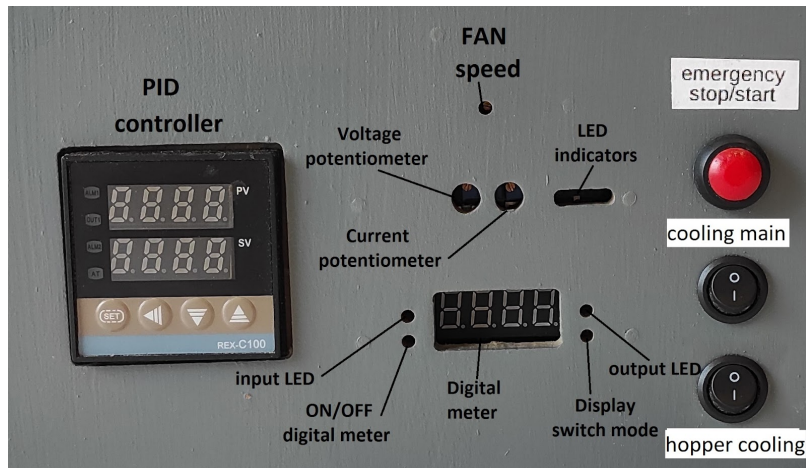
**Please note that we are not responsible for any breakdowns that may occur if you change the settings.**

LED color codes:

- Red: The motor protection has triggered, indicating that something is blocking the auger. Check what is blocking the auger. You may need to clean the nozzle. Also, verify if the temperature is too low to heat the plastic.
- Blue: normal operation of the motor.
- Green: This is possible if the motor is not driving a load.

In normal condition, the motor protection should not be triggered. If this happens, then try:

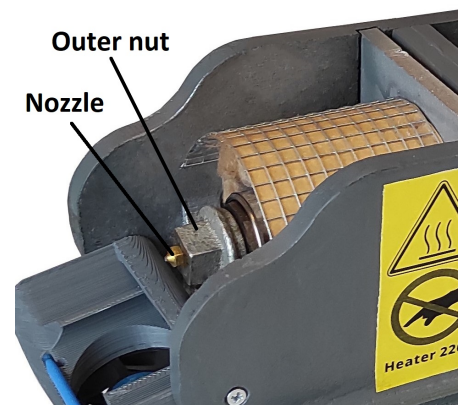
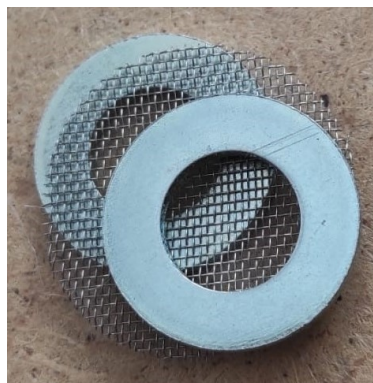
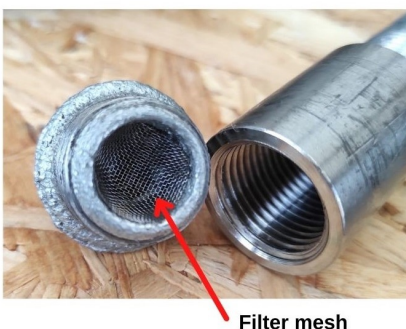
- Add half or one turn clockwise (voltage and current potentiometers)
- If 1 didn't help, then it may be necessary to clean the nozzle, because something is blocking the auger.



## CHANGING THE NOZZLE

To replace the nozzle, follow these steps:

1. Wait until it heats up, and then, using a wrench, unscrew the outer nut.
2. Pull out the filter mesh.
3. Unscrew the nozzle.
4. Clean the channel.
5. When extruding PLA plastic, it is recommended to use 2 washers so that the mesh is not pushed inward.



## EXTRUSION OF LOW-TEMPERATURE PLASTICS WITH HIGH FLOW PROPERTIES SUCH AS PLA, PET

1. Use the attachment dispenser to reduce the area of contact with the heated surface.
2. It's also recommended to turn off the hopper cooling (this reduces temperature fluctuation)
3. To further adjust the stability and diameter of the bar, change the inclination of the cooler, it's also recommended to increase the speed of the nozzle from the side of the nozzle to the maximum.
4. It is important to wait until the extruder temperature stabilizes.

Temperature for PLA is about 210 °C (Add PLA pellets to shredded PLA plastic about 50/50).



dispenser



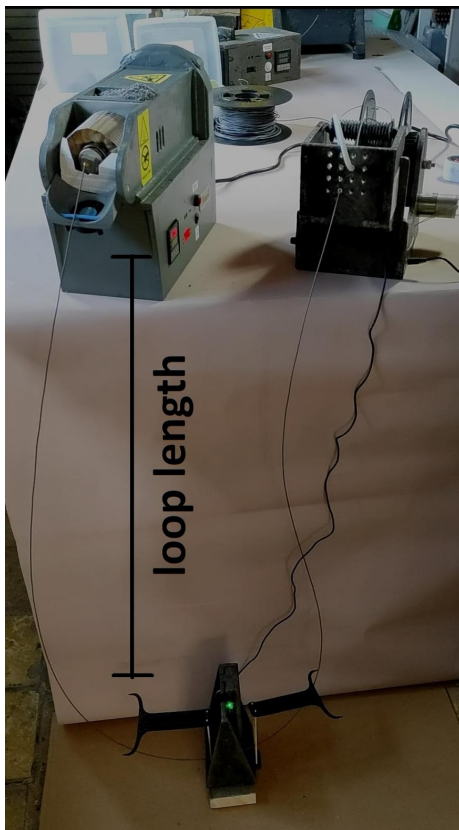
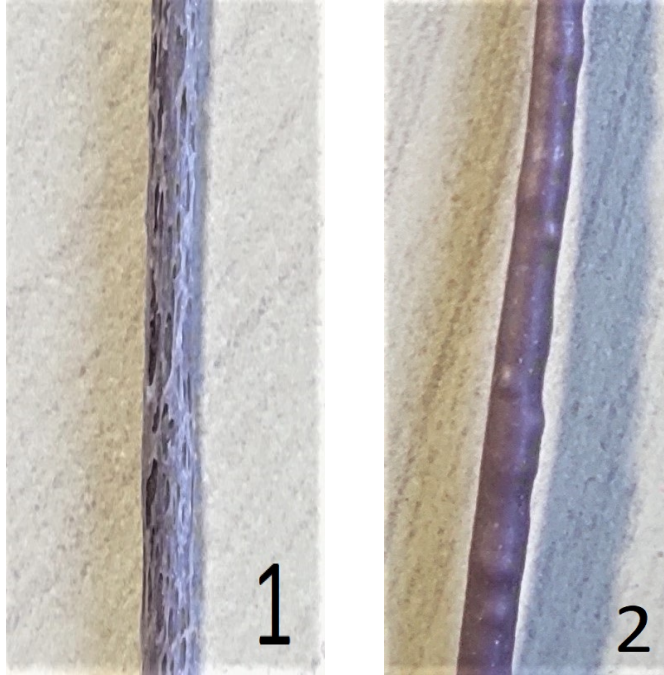
cooling

### SPECIFICATIONS

1. Size 40\*25\*16 cm
2. Attention! The heater operates at 220V
3. Heater power 145W
4. Maximum peak power consumption 200W (with heater)

## TROUBLESHOOTING

- The speed and quality of the extruded rod can be affected by the uniformity of the crushed material spilling into the hopper. If the extruded rod is thin and has a sponge-like texture, and if the extrusion speed has decreased (as shown in photo 1), it may indicate that the material is stuck in the hopper.
- A blockage in the nozzle can also cause a similar extrusion defect. In such cases, replacing the metal mesh filter may be necessary.
- Defects in the rod at the beginning of extrusion (photo 2) can result from air accumulating inside the extruder barrel during the melting of the material.
- Increasing temperature due to the boiling of the plastic can also cause this problem. In such cases, it is recommended to lower the temperature.



- The diameter of the extruded rod is determined by the relationship between the temperature of the melted material and the tension of the loop length being fed into the winder.
- For automatic production, the extruder and winding machine should be set in their default placement.