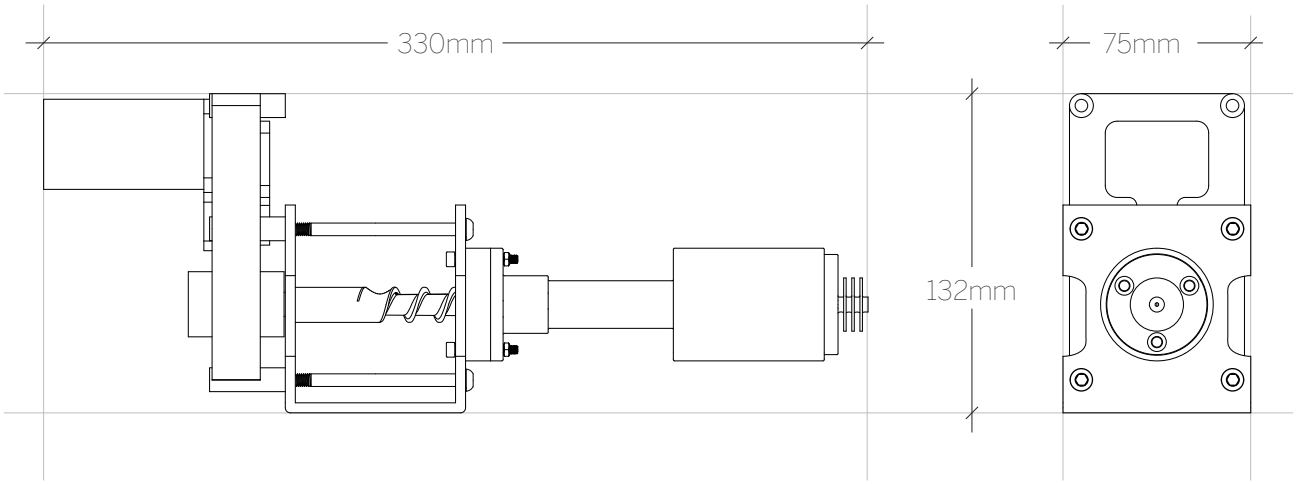
Fælfil

- evo -

Basic Kit



Thank you and congratulation for choosing the Felfil Evo Basic Kit.

Felfil Evo Basic Kit is part of a bigger plastic filament extruder, able to produce filaments for 3D printers starting from industrial pellets or plastics wastes.

This guide is designed to allow you a good experience with Felfil Evo Basic Kit, please read this manual in all its parts before assembling and operating.

Felfil Evo is suitable for domestic, research or business use; it is wary of improper use.

electrical	input 12V
temperature	max 280°C
weight	2Kg

Warnings

Felfil S.r.l. does not assume responsibility and expressly disclaim liability for loss, injuries, damage, or expense arising out of or in any way connected with the assembly, handling, storage, wrong use or disposal of the product. Please, read this document before use Felfil Evo.

Any kind of modification will be at your own risk, and will result in the decay of the warranty. Felfil S.r.l. does not take any responsibility for damage occurred to people or object, caused by such modifications or improper uses.

- Do not use vinyl and PVC, they will produce toxic emissions.
- Do not eat or inhale neither the plastic pellets nor the extruded plastic.
- Do not use the extruder if any parts are missing or damaged. If you notice any damage to the unit, unplug the device immediately and contact the Felfil team for guidance.

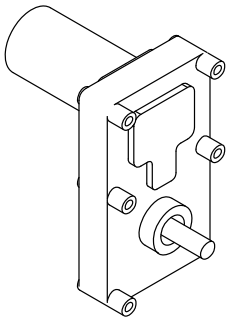
Use the device only with specified input power. Using the device with any other input power is likely to damage the electrical and/or electronic parts of the device.
Remind to keep the equipment out of children's reach.
Use this device only to extrude plastic filament for 3D printing. No other use has been tested.

Caution

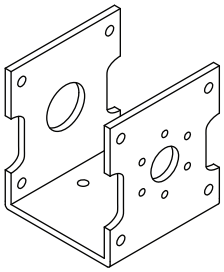
- Do not insert screws, nuts or materials unsuitable for extrusion in the catchment area.
- Do not insert your fingers in the feeding windows of the plasticizing screw located on the upper side of the pipe.
- Do not insert water in the extruder.
- Do not touch pipe, nozzle and resistor when the extruder is switched on, it may hurt you.
- Do not hit the extruder and its accessories or you could damage the extruder.
- Please, never try to extrude a plastic unless you are absolutely certain you know what type it is.
- Some polymers can undergo thermal decomposition resulting in potentially toxic fumes. So always use the Felfil Evo in a well ventilated area, or inprecence of a suction hood (not your bedroom or inside your house), and understand the thermal decomposition properties of the polymer you are extruding.
- Be sure to check in on it periodically.

The Felfil Evo Basic Kit is a first-generation, experimental piece of hardware. Treat it as such. Basically, use common sense.
If you have questions, write us at: support@felfil.com

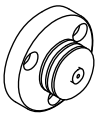
The Felfil Evo Complete Kit includes those components:



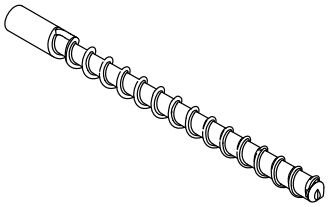
1X Gearmotor E1



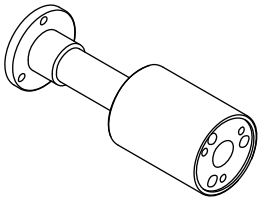
1X Structural Support P1



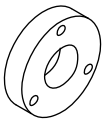
1X Nozzle T1



1X Extruding Screw T8



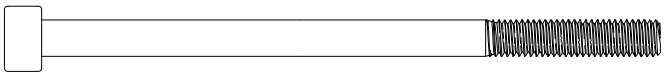
1X Melting Chamber T5



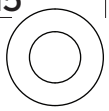
1X Teflon T7

1X O-ring T3

4X TCE **M5**x85



4X WA **M5**

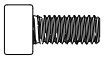


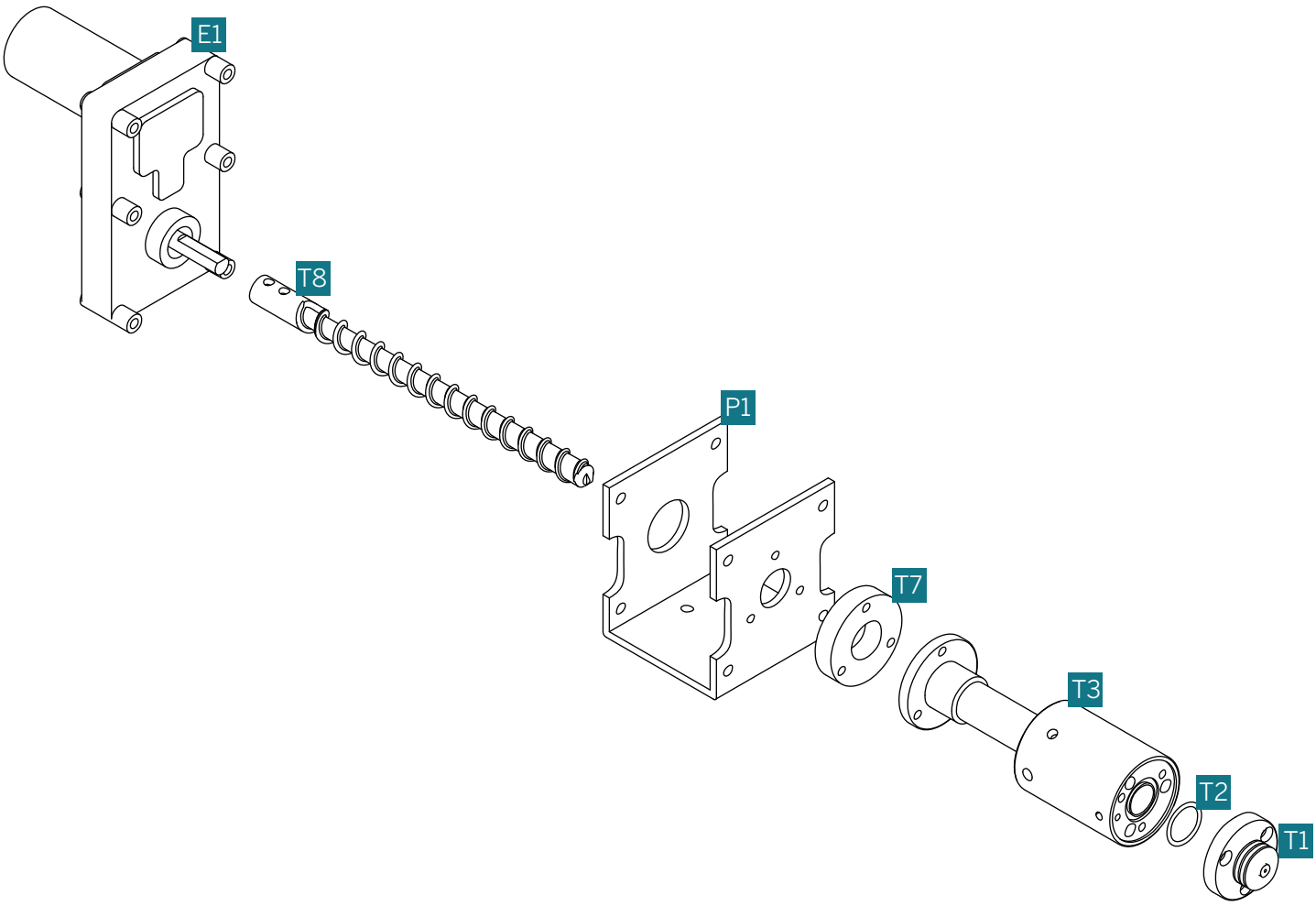
2X VCE **M5**x6

3X DE **M4**

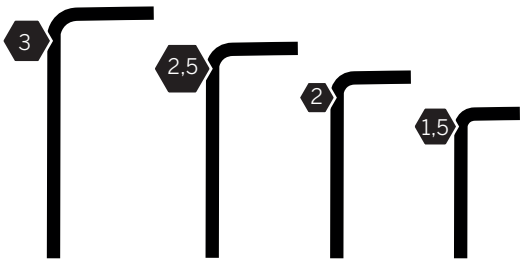
3X TCE **M4**x30

3X TCE **M4**x8

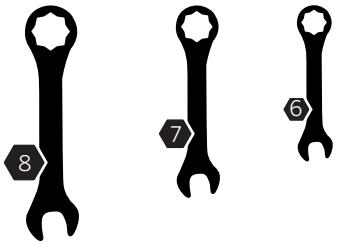



E1
T8
P1
T7
T3
T2
T1

Those are the tools you will need in order to assemble your Felfil Evo Basic Kit.
Tools are not included in the package.



hex wrench

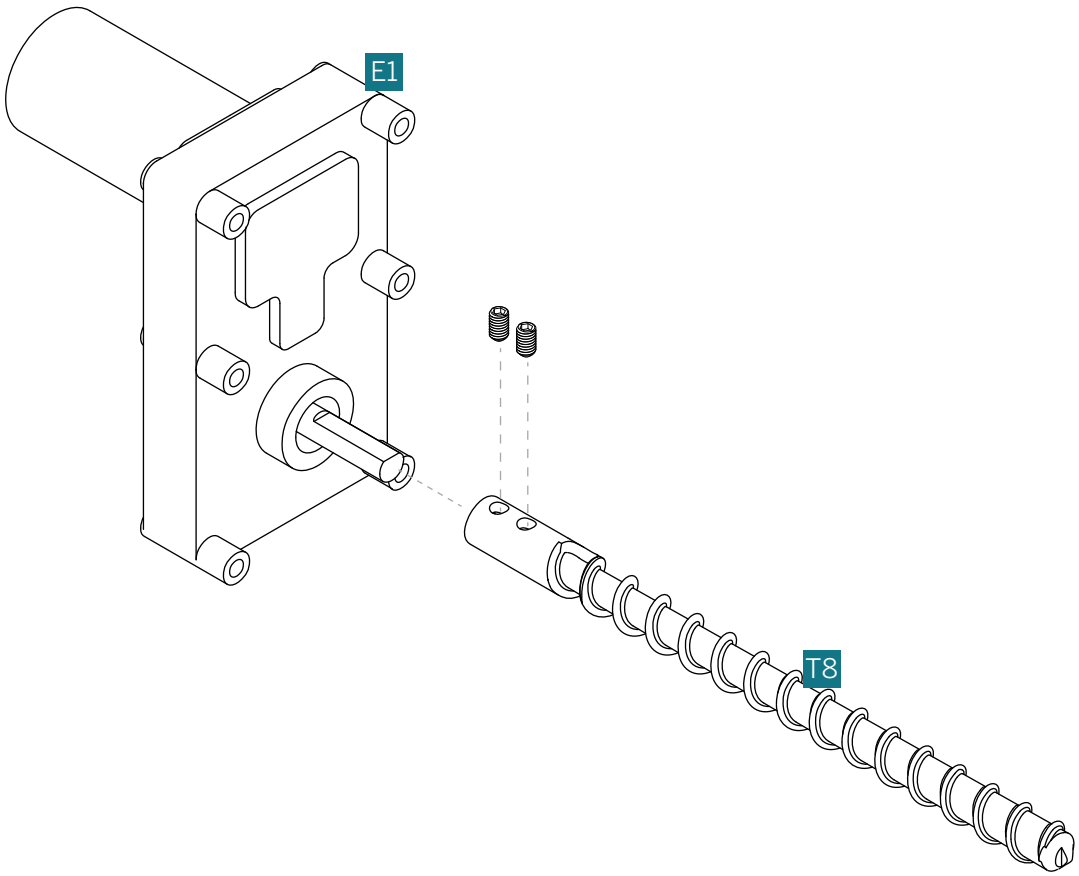


combination wrench

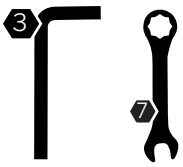
Tools

Small Parts

Insert the screw T8 into the gearmotor hub E1 and close whit two grains.



Tools

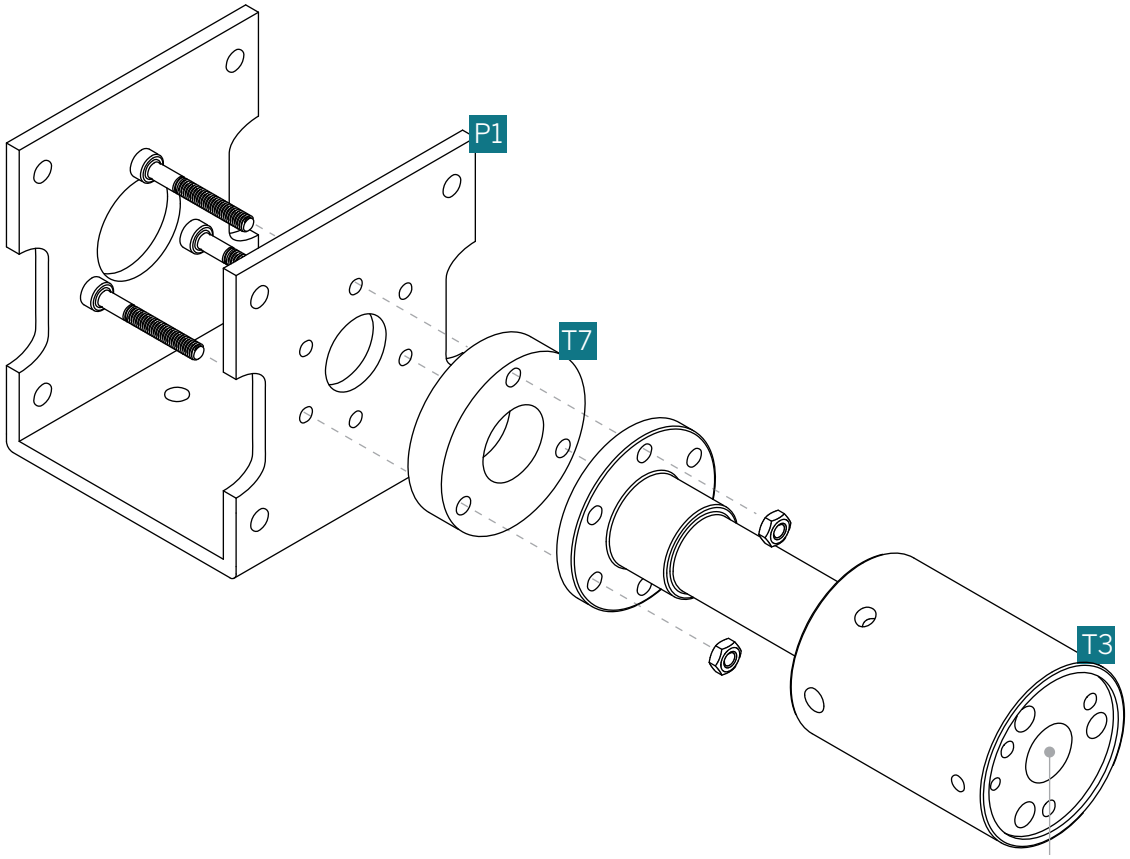


Small Parts

3X

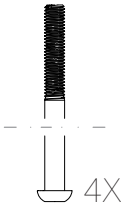
3X

Screw the melting chamber T3 and the teflon insulator T7 to the structural support P1.

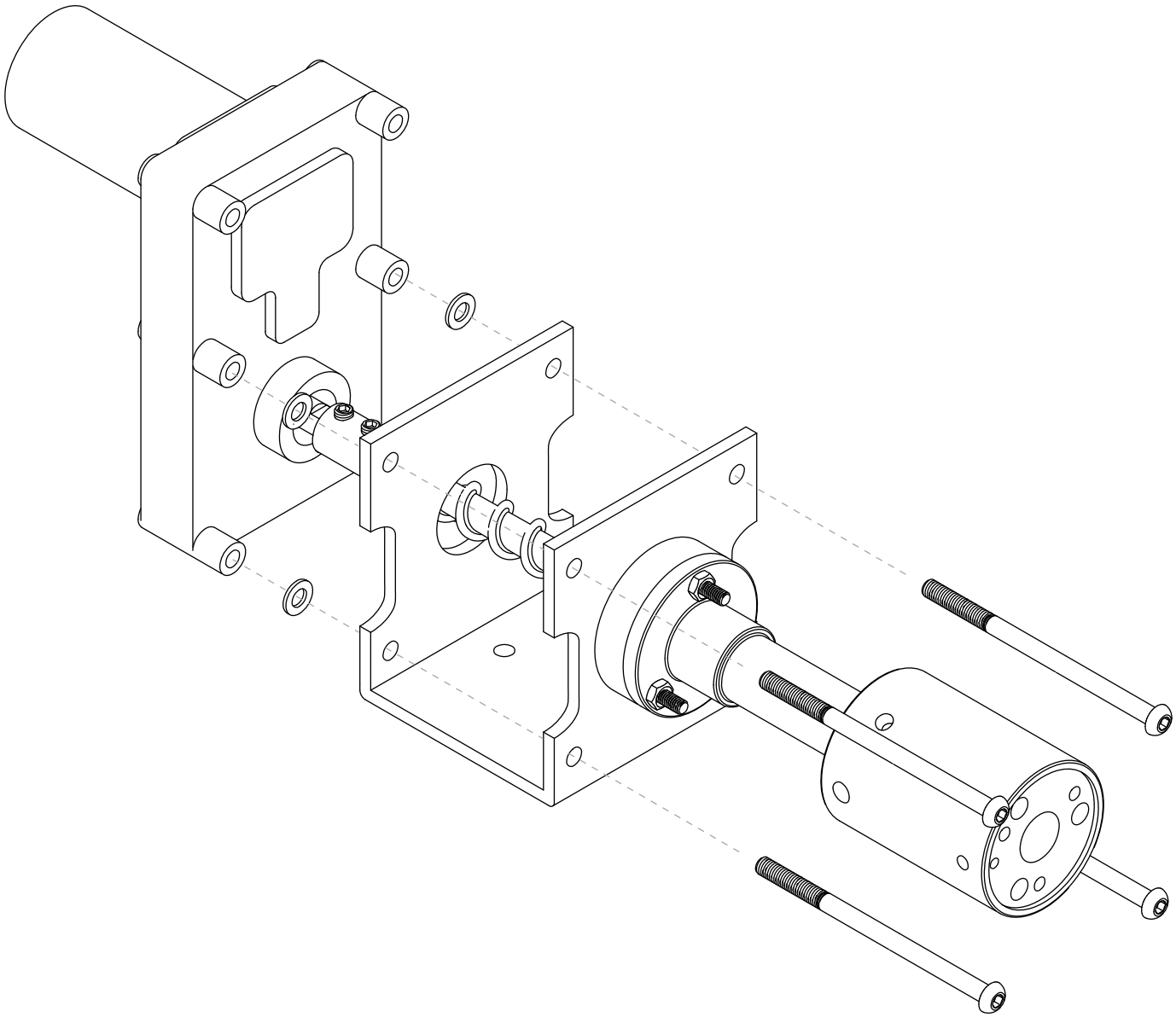


Tools

Small Parts



Insert the extrusion screw T8 trought the structural support P1 and screw it to the gear-motor E1.



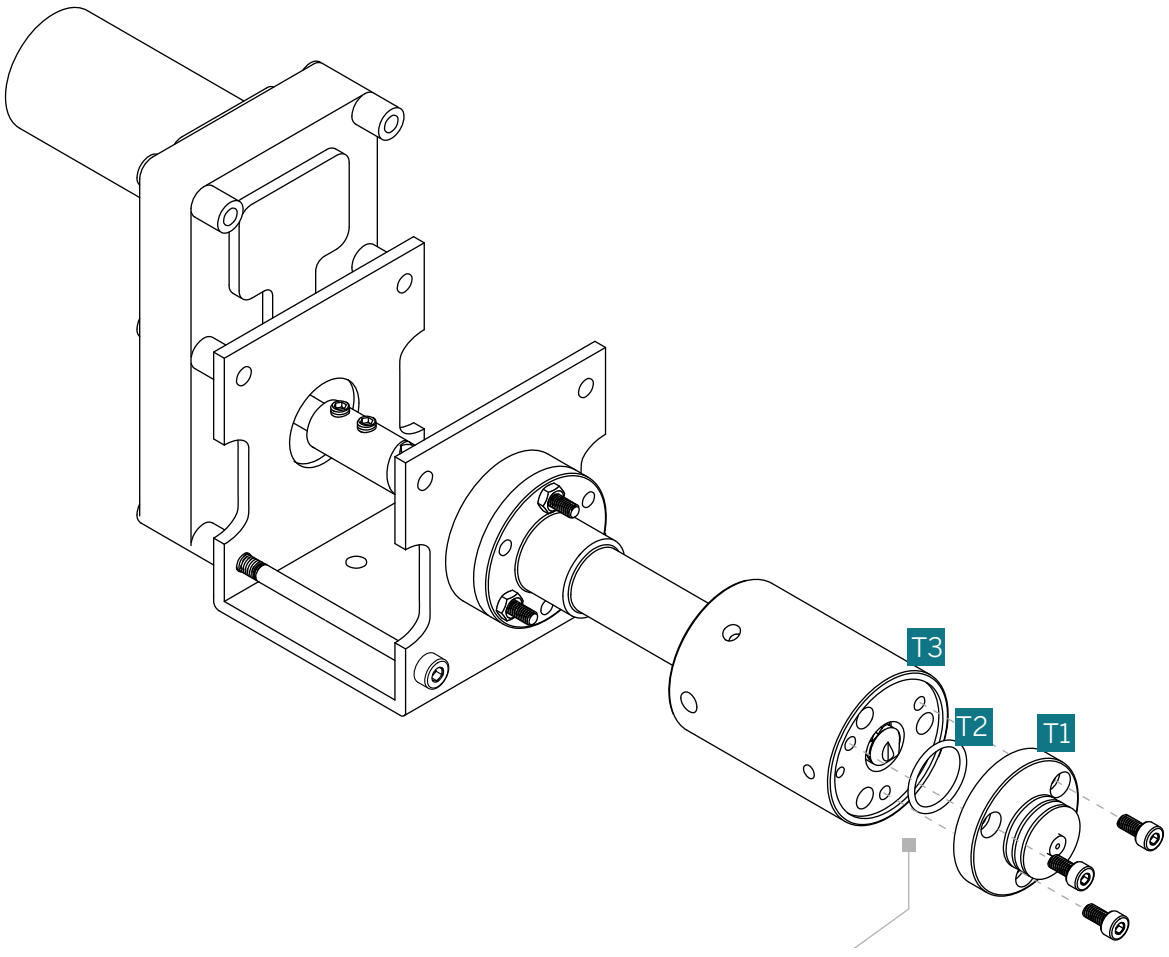
Tools

Small Parts

3X

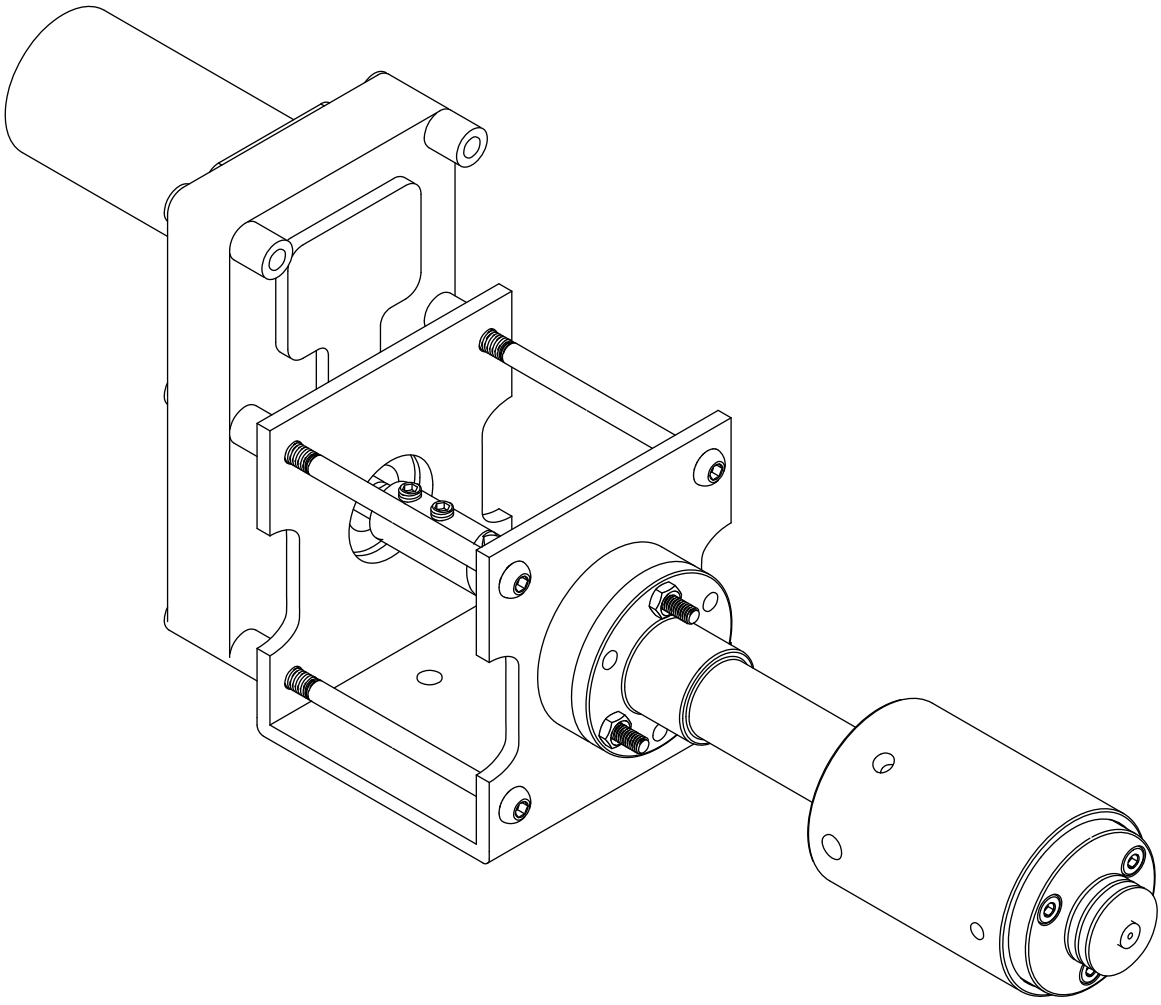
1X

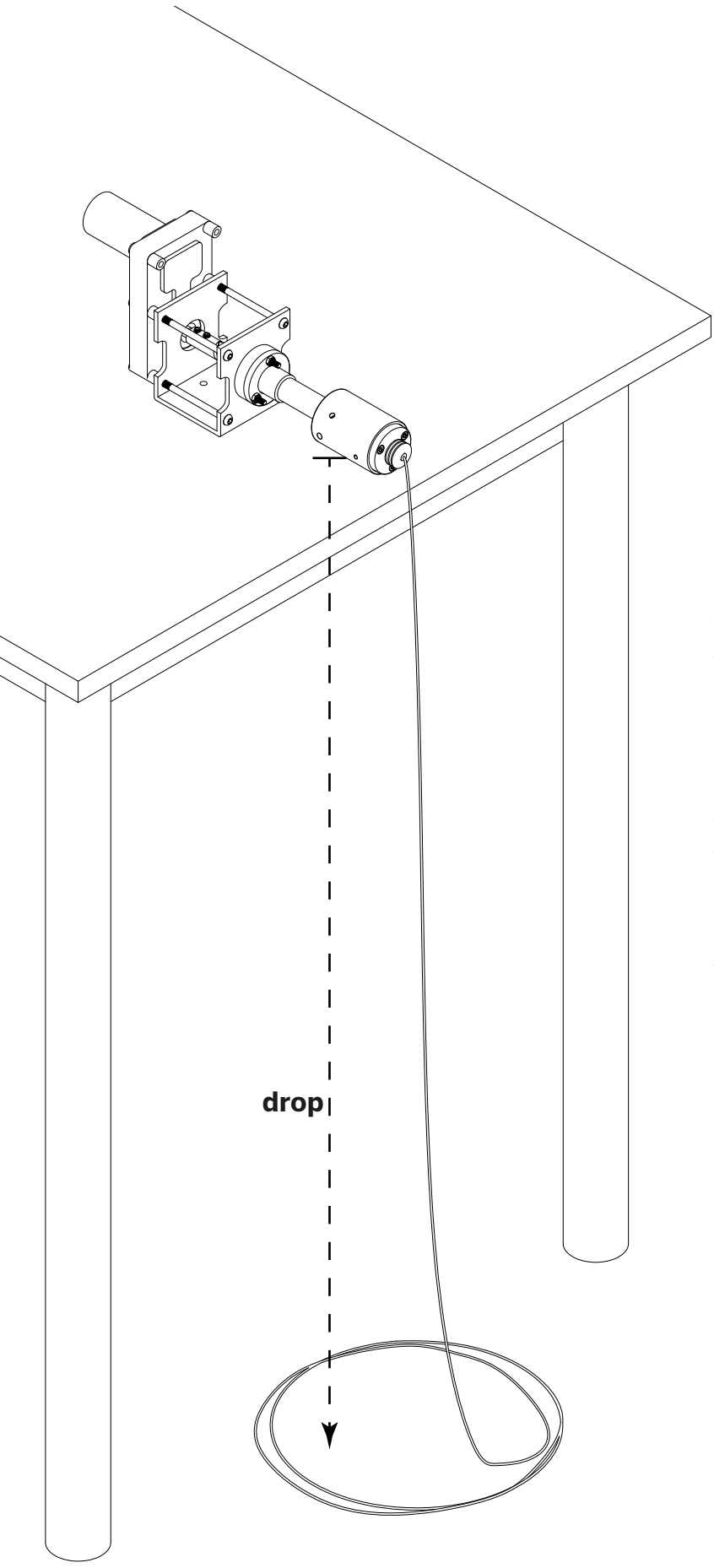
Insert the O-ring T2 in the guide and screw the nozzle T1 to melting chamber T3.



Tools

Small Parts





In order to obtain the best quality filament, Felfil Evo is designed to be placed on a common and stable table and to extrude on the floor.

The height of extrusion is called **drop**, and tipically is about **80cm**.

Moreover, with some materials, will be useful to reduce or to increase the drop in order to obtain more constant diameter of the filament;
typically PLA need this treatment.

So, if your filament is quite inconstant, or get stretched too much, try to reduce or increase this value.

? Usage

For a correct usage of Felfil Evo Basic Kit please follow these suggestions:

- Place it on a flat and stable surface before operating (a table is quite good);
- Do not place anything near Felfil Evo, it requires unrestricted airflow, for cooling, proper operation and to protect the electronic components from overheating;
- The extruding screw must turn clockwise.

The first meters of filament will be dirty, and may have some metal shavings in it. Do not use this filament in your 3D printer. Extrude all the pellets that were in the hopper, if filament still looks dirty after this step, extrude more pellets to further clean the system.

Please pay attention:
- If the nozzle is not correctly tightened, plastic may exit, producing smell.
- If you recognise smell of burning plastic, immediately stop extrusion, open Felfil Evo Basic Kit and check that everything is ok.

If you have any problems using Felfil Evo Basic Kit, contact: support@felfil.com.

? Maintenance

Felfil Evo needs some occasional maintenance:
- When you have finished to extrude, empty the hopper leaving the filament extruder running for few minutes.
- Use always gloves while working on still hot components.
- Remove the three nozzle screws only when these are cold.

In this section you can find some information about the plastic.

When using commercial pellets, rely on the maker's identification of the type of plastic. When using recycled plastic, check the markings on the item(s) to determine which type of plastic you are using.

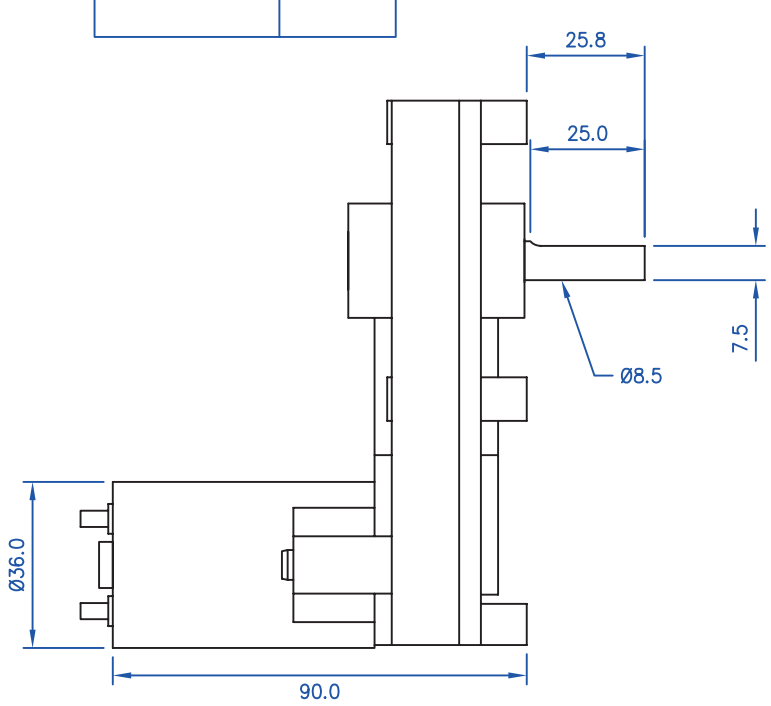
Do not mix types of plastic, as this may affect processing times, both in the extruder and in the printer.

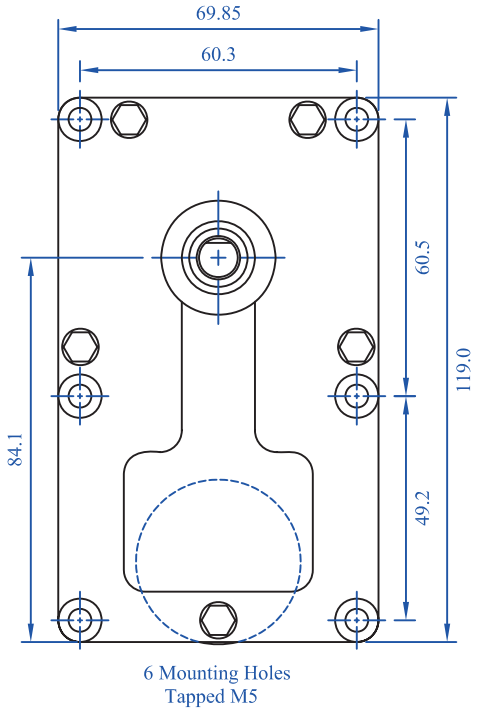
The following is a table of general processing temperatures. Notice that the processing temperature may not be the same as the melt temperature.Temperatures will vary based on: humidity, ambient temperature and chemical composition of the polymers.

Finally, please keep in mind that the following parameters are valid for a standard Felfil Evo Assembled, they are displayed only as reference to help you to setup your machine.

	MFR	Density [g/cm3]	T [°C]	Speed [rpm]
PLA	6	1,3	180 (+/-10)	5
ABS	19	1,04	200 (+/-10)	6
HIPS	4	1.04	180 (+/-10)	6
TPU	-	1,22	190 (+/-10)	8
T45 (pc+abs)	4	-	180 (+/-10)	6

APPROVED	
SIGNATURE	DATE





TECHNICAL DATA

Motor Type – 555 Series
Voltage – 12v DC

Motor Resistance at 21°C. –
2 Ohms

Input Power at 12v DC –
3.20 Watts

Nominal Current at 12v DC –
0.300 Amps

Stall Current at 12v DC –
2.191 Amps

Output torque at 12v DC –
23Nm

Thermal Protection –
No Thermal Protection

Duty Cycle – Continuous

No Load Speed at 12v DC –
8rpm.

Output Shaft Rotation when viewed from front – CW/CCW.

Temp Heat Rise –
21°C – 65°C / 5hrs

Dimensions in mm

MELLOR ELECTRICS Ltd BLACKBURN ENGLAND	DESCRIPTION T3 DC 8rpm 12v DC 555 Series	DRAWN	LC	26/03/15
	CUSTOMER SOFTING ITALIA	PART No FBDseries		

Contacts:

Felfil s.r.l.
VAT number: 11482100010
Corso Castelfidardo 30/A, 10129 Torino, Italy
support@felfil.com

Please be sure to download always the latest version of this manual from: **felfil.com**
Manual revision: 1.1
Last revision date: November 2017