

Material: igumid P150-PF

1. General

The material igumid P150-PF, developed by igus®, was developed and tested solely for the “Fused-Deposition-Modeling” (FDM) manufacturing method.

igumid P150-PF is relatively easy to process and can be used on most 3D-Printers. Since it is an abrasive, carbon fibre reinforced material, the mechanical components which contact the material have to be protected against wear.

2) Processing parameters

The optimum processing parameters depend on the various print parameters and on the 3D printers that are used. Therefore, only ranges of values can be specified here (see the figure on page. 2):

- (1) Nozzle temperature: 250 - 270 °C
- (2) Nozzle diameter: 0.4 - 0.6 mm (the fibre content might lead to blockages in the nozzle when using 0.4 mm nozzles)
- (3) Bed temperature: 50 - 70 °C
- (4) Print speed: 20 - 40 mm/s
- (5) Bottom layer speed: ~ 20 mm/s
- (6) Layer height: 0.2 - 0.3 mm
- (7) Shell-thickness (6.1) to nozzle-diameter (6.2) ratio: 1.1 - 1.2
- (8) Part cooling: 20 - 30 % for optimum mechanical properties, higher is possible
- (9) Bed surface:
 - o Glue stick on glass
 - o igus adhesive for Tribofilaments (PF-ADHESIVE-01)

3) Further processing instructions:

When feeding the filament, the bends should not be too tight, i.e. the radius should not be less than 40 mm. Extruder gear and nozzle should be protected against wear, i.e. by using hardened metal or ruby/sapphire components

Upon processing, ensure good ventilation of the surrounding room. Alternatively, a 3D printer with integrated exhaust air filtration can be used. In addition, appropriate protective equipment should be used when handling the hot molten mass.

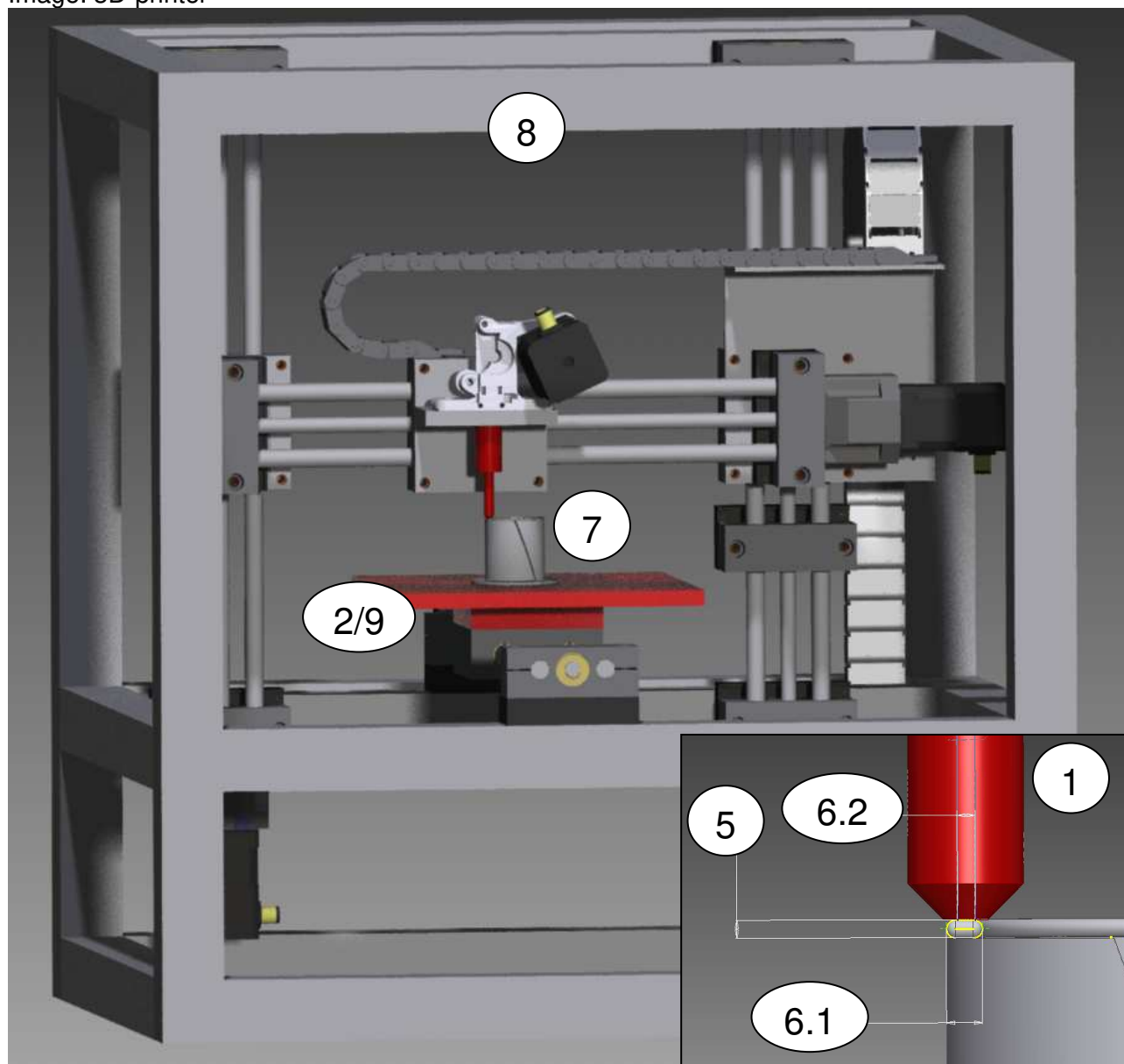
The material should not be heated beyond 320 °C. When burning the material, hazardous decomposition products are generated.

Protective gloves should be worn for handling. The formation of dust (e.g. by grinding) must be avoided urgently. Based on the supplier’s experience and the information provided by the supplier, the product has no adverse health effects if properly handled and used in accordance with the intended purpose.

4) Storage:

The filament should be stored dryly and protected from moisture. If needed, it can be dried at around 100 °C for at least 6 hours.

Image: 3D-printer



4) FAQ

Where do I find the processing instructions for igumid P150-PF?

Following the link on our website: <https://www.igus.de/product/20469>

Do I need a heated bed (platform) on my printer?

Yes, for most of the Tribofilament materials a heated bed is necessary, only Iglidur® I150 can be processed without heated buildplate (then igus adhesive film is needed).

Does igus® offer a filament diameter size of 2,85 mm?

The 3 mm filament is designed to be suitable for printers requiring 2,85 mm.

Where can I get the igus® adhesive foil for the printing-bed?

Following the link on our website: <http://www.igus.eu/Adhesive film for print bed>

Which Tribofilament is the easiest to process?

Iglidur® I150 is by far the most easily to process Tribofilament. It can even be processed without heated buildplate (then igus adhesive foil is necessary).

Iglidur® I180 is suited for more advanced users, because more conditions need to be considered (e.g. enclosed printer, switched off fan).

Iglidur® I170, Iglidur® J260, and Iglidur® C210 are suited for experts; since they are harder to process.

Iglidur® J350, RW370 and A350 require a special high temperature 3D printer for processing.

The printed part does not stick to the print bed, what can I do?

1. Check the distance between nozzle and print bed. Re-level the platform when necessary.
2. Did you use the correct printsurface? Is the printer enclosed? Check page 1, point 2
3. Increase bed-temperature
4. Try using "Brim" as the adhesion type in your slicer software (normally used for large parts)

The adhesion between printbed and part is too high. How to reduce the adhesion?

Reduce the print-bed-temperature.

Does a running fan (part-cooling) help with the print quality?

All iglidur Tribofilaments are preferably printed with switched off fan.

The layer adhesion or strength at my part is very bad. How can this be improved?

Make sure the fan is off (part cooling) and the printer is enclosed, so that the hot air stays inside the printer.

How can I avoid/ cope with material accumulation on the nozzle?

With large volumetric print jobs, material can accumulate at the nozzle. One way to reduce the issue is to decrease the material infill density to ~ 80-90% and adjust material flow at the printer depending on the print layer appearance. Furthermore, the application of a prime tower as a wipe barrier during every layer can be preferable in some cases.