

The Polyfloss Factory. **About our technology**

— THE —
POLYFLOSS
— FACTORY —



' Our technology is not only dedicated to recycle plastic, but to also generate local economies and provide livelihood programs with a suitable and ready-to-use solution for local implementation '

Table of contents.

- 1.0 What is The Polyfloss Factory ? . 3**
History & Experience 3

- 2.0 What can we do for you ? 4**
2.1 Machine 5
2.2 Services 8

- 3.0 The process. 9**
3.1 What is the process ? 10
3.2 Waste to avoid 11
3.3 Plastic Identification 12
3.4 Ressources 13
3.5 FAQ 14

- Contact. 16**

1.0

What is The Polyfloss Factory ?

History & Experience

Polyfloss was born in 2012 as a student project at the Royal College of Art in the Innovation Design Engineering Department to tackle the plastic waste issue. Through an immediate success in the press and specialized events, **it became a company in 2013.**

Since then, we kept improving our technology, which has been implemented throughout the years in different areas :

In the setup of a **fully local operational recycling facility** in Antananarivo, Madagascar.

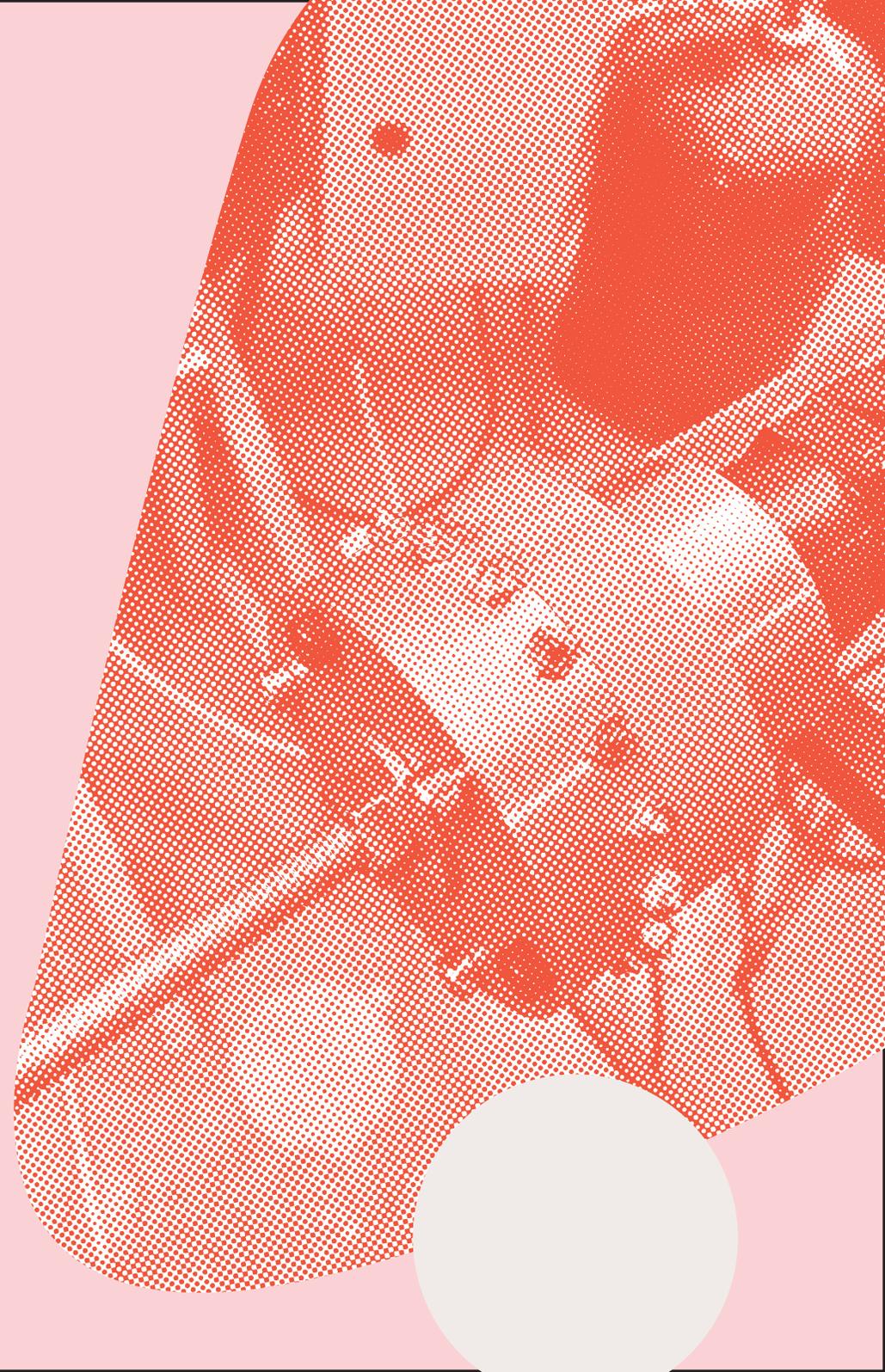
In the Waste for Warmth project in the humanitarian sector , in Gaziantep, near the Syrian border, to **produce insulation products out of waste for refugee camp winterization solution.**



2.0

**What can we do
for you ?**

- * **Our Technology**
- * **Our consulting
services**



2.1

Machine.

Our latest Polyfloss Machine is a fully operational and a field-tested solution to recycle thermoplastics into fibers.

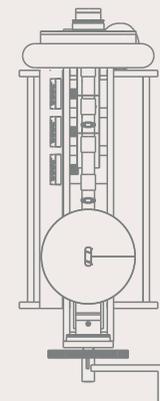
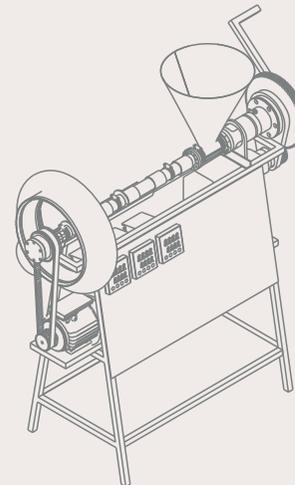
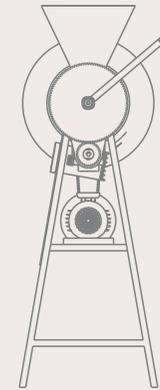
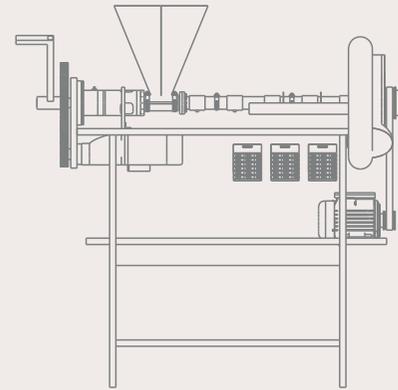
Dimension : w1680 d800 h1150 mm

Total weight : 80 Kg approx

The machine uses :

- Fully automatic heating and spinning system with control pannel
- Monophase electrical current

Operation need : 1 technician



2.1

Machine.

Power requirement : 600 W

Machine throughput : 10kg/hours

Type of plastic :
Works with PP, PET.
Optimized for PP.

Heat source : Electrical Heating

Procession speed : 10Kg/Hour

Temperature range : 160-350 °C

Hopper Size : 10 Kg

Floss grade (1-10) : 6-9



The machine in Gaziantep



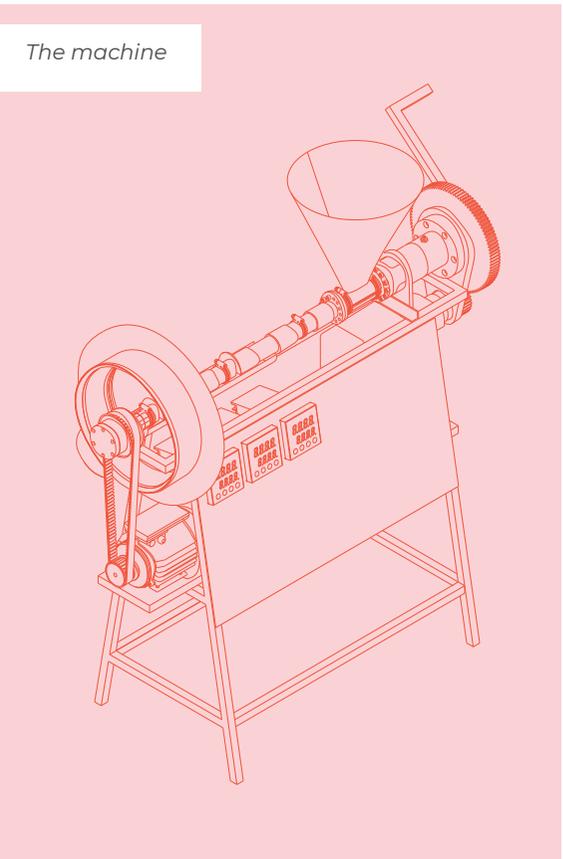
Machine'head



Floss produced



The machine



2.1

Machine.

Fabrication Lead Time : 6weeks

Transport & shipping time :
Depends on location

Price : On demand

IP : Patent pending



Machine's Head



The machines in Gaziantep



2.2

Services.



Our team of engineers, designers and technicians provide **training, study, and maintenance** programs to properly use the machine and **setup a recycling ecosystem responding to local needs and opportunities.**

1. Basic Services Pack

Training on the machine
basic maintenance program

2. Setup Services Pack

Study on local plastic sourcing and compatibility
Setup workshop and security protocols

3. Product design Services Pack

Study of local ecosystem and possible needs
Product design and fabrication of prototypes

**These services can be tailored to projects.
Prices on demand.**

3.0

The process.

- * **What is the process ?**
- * **Waste & Plastic identification**



3.1

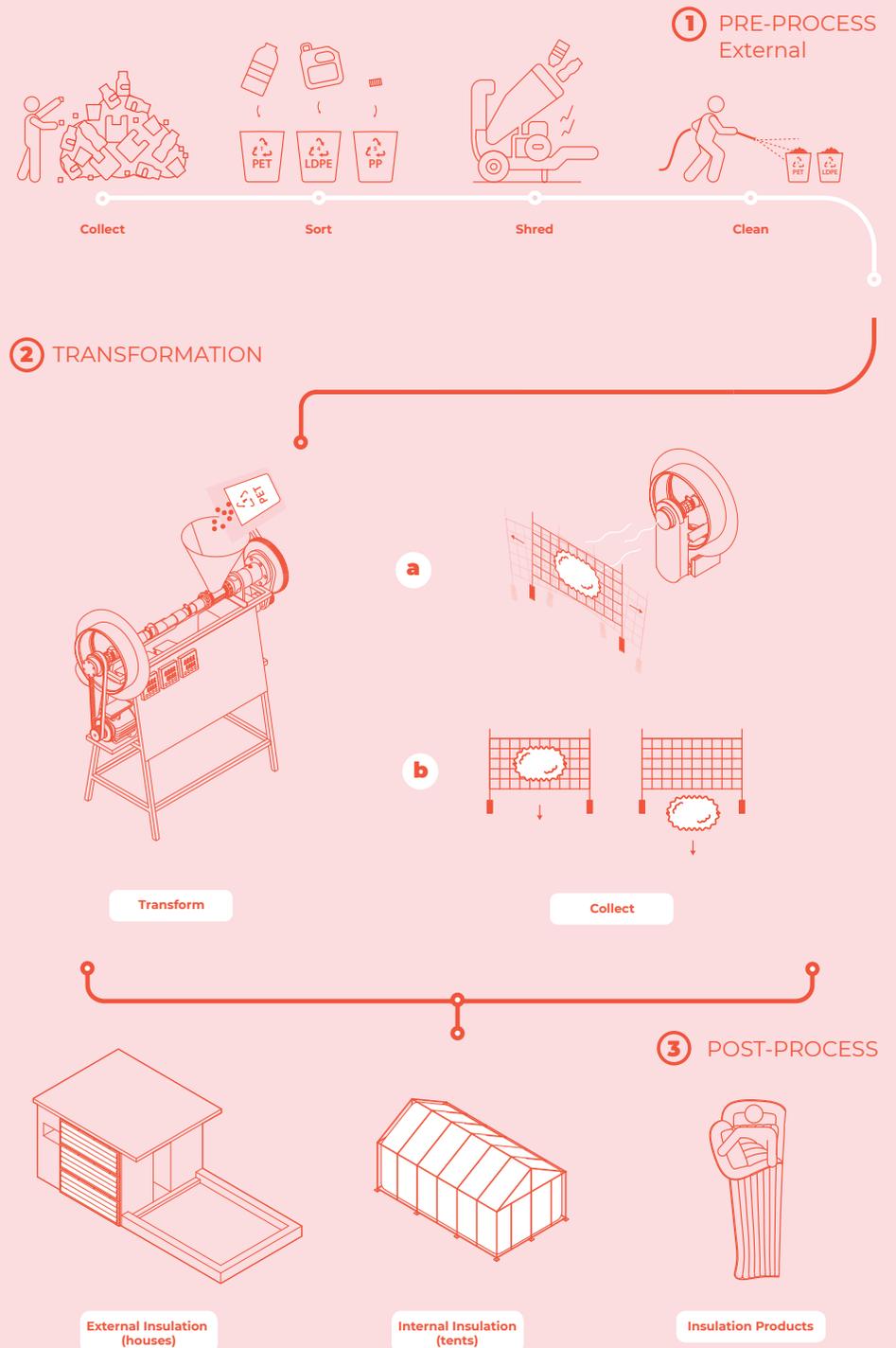
The process.

The machine is **optimized for the process of PP, and Pet.**



Those are the plastics with which the **quality of the floss produced is the best.**

You should prioritize those plastic waste for a better production quality.



3.2

Waste to avoid.



Other



PVC



PS

Disclaimers

Plastics of the 7th group, «others» Plastic, as well as PVC and PS should be avoided at all costs. These plastics can damage the machine, release toxic fumes and cause fires.



others

Lists of most common plastics in this category :

Polycarbonate, Acrylic, ABS, PLA

Common Products :

<p>Polycarbonate :</p>  <p>Common uses : Glasses or eyewear, car parts (dashboard, head lamps, sunroof), protective gear, CDs/DVDs, housing of power tools, roofing sheets</p>	<p>ABS :</p>  <p>Common uses : Lego bricks, Computer keyboards, Power tool housings, housing for home electrical appliances, Toys, Canoes</p>
<p>PLA :</p>  <p>Common uses : Takeaway storage containers, takeaway cups or utensils, medical application (implants, rods, screws), 3D printing</p>	<p>Acrylic :</p>  <p>Common uses : signs, sales displays, roof windows, lenses and screens...</p>

! X

3.3 Plastic Identification.

 PET polyethylene terephthalate	 HDPE High-density polyethylene	 PVC Polyvinyl chloride	 LDPE Low-density polyethylene	 PP Polypropylene	 PS Polystyrene
Usually clear or green, The appearance is milky white, translucent and waxy when uncolored	Translucent in thicker sections , opaque and easily coloured	Glossy may be clear/ transparent.	Transparent only as thin film, translucent in thicker sections	Translucent in thicker sections When uncolored, the appearance is white, waxy and translucent	Glossy, may be clear, the transparent appearance looks like uncolored glass
Impact resistance : High	Impact resistance : High	Impact resistance : Good	Impact resistance : High	Impact resistance : Good	Impact resistance : Low
Common Products : soda & water bottle, fruit juice containers, cooking oil bottle, liquid containers	Common Products : Milk jug, shampoo and shower gel bottles, laundry detergent containers, cleaning agent bottle, bottle cap	Common Products : drainage pipes, cable insulations, records, fruits plastic packing, oil and chemicals	Common Products : squeeze detergent bottle, food storage containers, trash bags, carrier bags, cold liquids	Common Products : pill bottle, yogurt containers, straws, plastic bottle caps, food packaging, bottle cap	Common Products : to-go food containers, CD cases, cosmetic packaging, cups, eggs containers
					
✓	✗	✗	✗	✓	✗

3.4

Resources.

We are able to offer you and provide different resources according to the needs of your project. From general machine user guide to more tailored product installation manual, we can work with you to find the best resources material for your project.

We can also provide you with a plastic identification kit, a methodology to identify unknown plastic waste on the field we have designed.

Product fabrication guide



Ndao Hanavao Project

User manual



Waste for Warmth Project

Plastic identification Kit



2.2

FAQ.

1. Can you process PET?

Yes, it is possible. However, we have not yet implemented these protocols on our latest machine design, it will be done by April 2022.

2. How do we ensure the maintenance of the head?

Answer: we will provide spare parts, but our technology has the advantage of not being very sensitive to impurities, due to its design (unlike other technologies from our competitors, which are based on blowing in a very thin head, and therefore very sensitive to impurities like sand). You just have to take out the plastic core at the end of the day so that the head is in good condition for its launch the next day.

3. How long can your machine run?

It has been running for several months, 8 hours a day, at Gaziantep, and has not encountered any major problem.

4. What can you do with it?

Answer: Textiles, molding, uses with locals, design etc.

5. How is it packaged / transported for these contexts?

It is sent assembled, plug and play, on a pallet protected by a standard wooden box. No problem to transport it by pickup on a bumpy road.

6. How big do the plastic pieces have to be to fit in the machine?

They just have to fit in the extruder, so 6 to 10mm maximum per piece.

7. What about fire resistance?

Plastic is not very fire resistant in general, but there are two strategies to deal with this problem: either encapsulate the material in another fire resistant material, or add fire retardants to the plastic itself. This can be done in the machine directly, via the extruder, but care must be taken with the quality of these additives for the quality of the wool. We can test for you if you wish.

2.2

FAQ.

8. Do you offer any sort of training/ guide for users of the machine?

Yes we have various services in that regards :

A comprehensive booklet with user manual and maintenance guidelines is provided with the machine.

We offer installation, training and production setup services onsite, with someone from our team coming to your premises once the machine has arrived. This would be billed on top of the machine purchase.

We can also offer training on the machine and maintenance in our production and R&D sites.

One is in Paris, the other in South-Turkey. This service would be billed on top of the machine purchase.

9. Do you provide a guide on what the varying temperatures and rotational speeds can produce?

Yes, we can provide a guide of temperatures and speeds, but we would advocate for a use with pre-specified temperature ranges and rotational speeds, according to plastic type, for security reasons.

10. Could you provide more details on the input versus output quantities ie. x kilograms of plastic produces by kilograms of Polyfloss ?

All the plastic introduced in the machine gets out of the machine in Polyfloss form. There might be some less qualitative floss during heating phase and cooling phases, which wouldn't be suited for certain specific uses, but all the plastic is transformed without loss.

11. Are there any specifications on the type of plastic (or other materials) that can be used in the Polyfloss machine?

We only process PP or PET.

12. What is the cost of the machine?

15.000 is the commercial cost, but we have specific lower rates for humanitarian contexts. Please contact us if that would be your case.

13. What is the standard process for exporting the machine and the costs and lead time therein?

Machine production lead time is 6 weeks. Transport lead time can vary depending on location and access to logistics. Please contact us to have more details.

Contact.

Audrey Gaulard

audrey@thepolyflossfactory.com



