

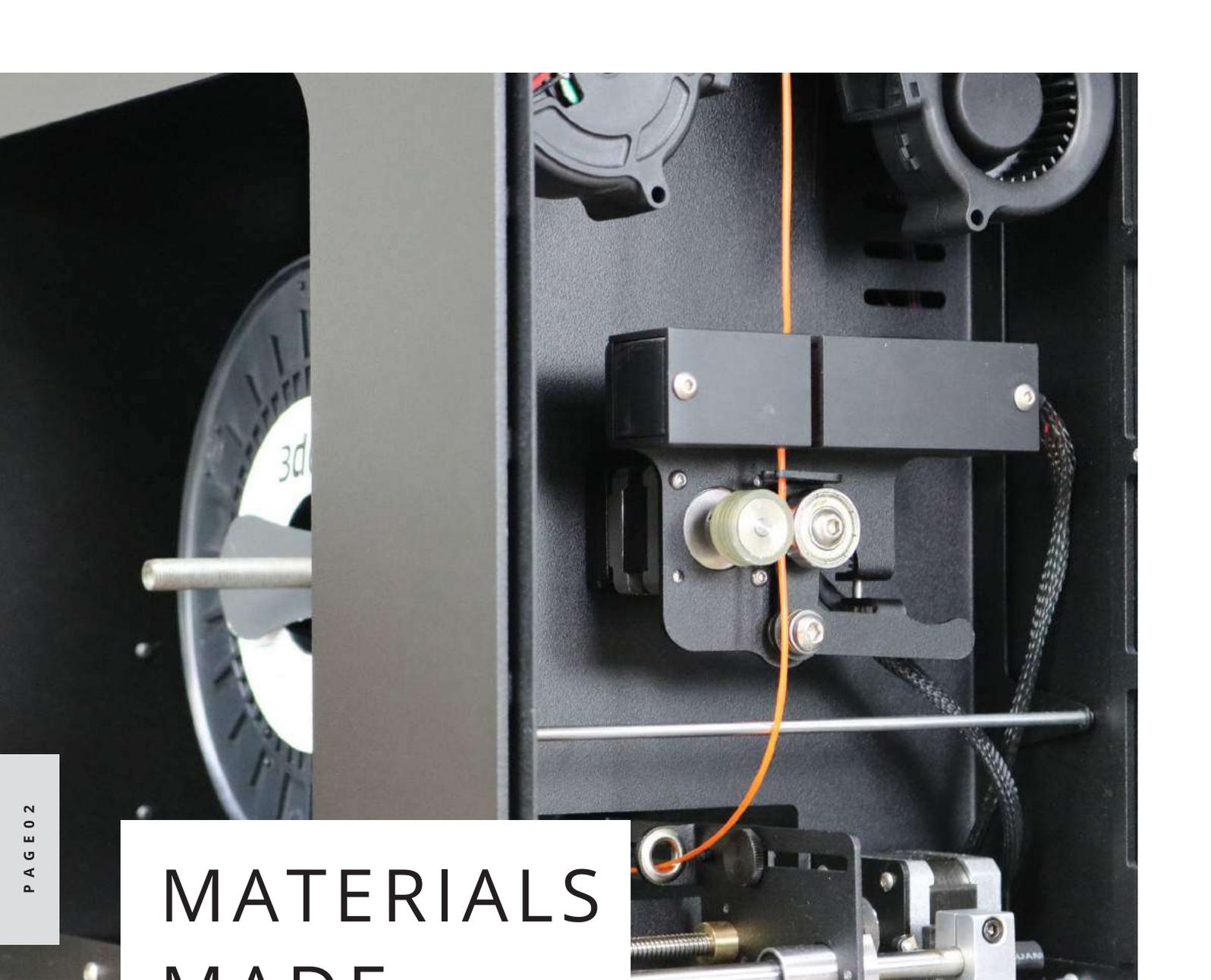
*3devo's* PRODUCTS AND SERVICES

**FILAMENT  
EXTRUSION  
WITHIN REACH**



***3devo***

MATERIALS MADE **SIMPLE.**



# MATERIALS MADE SIMPLE.

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3devo is a young high-tech company based in The Netherlands which develops accessible and high-quality products that empower innovators and creators. 3devo has made it their priority to create products that fully cover the extrusion circle, with each product enhancing the quality of 3D printing filament. 3devo also assists business, educational facilities and research labs in transitioning to a more sustainable business model.

Staying focused on these goals, 3devo constantly improves its products and searches for ways to take polymer innovation to the next level.



# esa

## CASE STUDY

*A race towards  
groundbreaking discoveries*

An agency that explores new materials and technologies for space applications, requires the freedom to experiment and innovate - without wasting resources in the process. 3devo was able to bring freedom and efficiency to ESA's research and development procedure with the Composer 450 Filament Maker.

### THEIR CHALLENGE

Spaceship EAC researchers constantly work towards enhancing the current capabilities of ESA's spaceflight programs. Researchers use 3D printing to prototype ideas for different projects. Typically, they use only small quantities of printing filament with specific properties. The low demand for these custom materials made it difficult to source. In addition to prototyping, one of ESA's ultimate goals was to implement a 3D printing closed-loop cycle, which would allow for endless in-space manufacturing, aboard a spacecraft or in a lunar base.

### OUR SOLUTION

By adding the Composer 450 Filament Maker to their setup, Spaceship EAC gained the ability to develop 3D printing filament in-house. Our solution supports experimentation with different polymers. Therefore, serving as the perfect solution for small-scale testing and prototyping work.

### OVERALL IMPACT

Since becoming a part of the European Astronaut Centre lab equipment, our Filament Maker has been instrumental in their prototyping process. ESA researchers have successfully used the extruder to develop custom quantities of **PLA** and **PEKK** based filaments, to print them under vacuum, and to recycle these materials in a 3D printing closed-loop cycle. The ability to produce filaments in-house has minimized the organization's dependence on external filament manufacturers. In the process, ESA retains control over all the stages of research and prototyping.

*“Our 3devo filament maker  
has met our expectations  
and the buying experience  
was so quick, that we  
were able to get started  
immediately”*

— *Stefan Siarov, Spaceship Team  
Member at EAC/ESA*

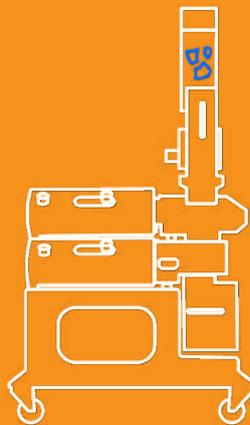
# THE ROUTE TO SUSTAINABILITY

*A process made simple*

Discover our streamlined ecosystem that delivers an industrial process at the convenience of your workspace. With our user-friendly products, we give you the control to create filament tailored to your specific material needs. Delivering a smart, cost-effective and adaptive production facility - The complete filament making solution.

## STEP 1 SHRED IT

Not sure what to do with your failed prints or other thermoplastics that have been collected? Recycle and convert those wastes into filament for 3D printers. With our shredder, you can grind down old plastics into regrinds with ease and effortless operation.



## STEP 2 DRY IT

Do you happen to be dealing with hygroscopic resins? Drying is a crucial step to ensure maximum polymer performance. Without this step, you risk shortening the long molecule chains and reducing the strength of the item you want to produce.





### STEP 3 EXTRUDE IT

Looking for ways to create very tight tolerances? After you have shredded (and dried) your regrinds, you can immediately drop it into our filament maker - designed to melt almost any polymer, including high-temperature thermoplastics and metal powdered combinations. From there, you decide how you want to customize your filament with precise diameter tolerance.



### STEP 4 SPOOL IT

Does it make a difference how the filament is rolled on the spool? Yes, that is why the extrusion and the spooling process is well-integrated, guaranteeing neat spools every time. This enhances your printing experience with neatly spooled filament.



### STEP 5 PRINT IT

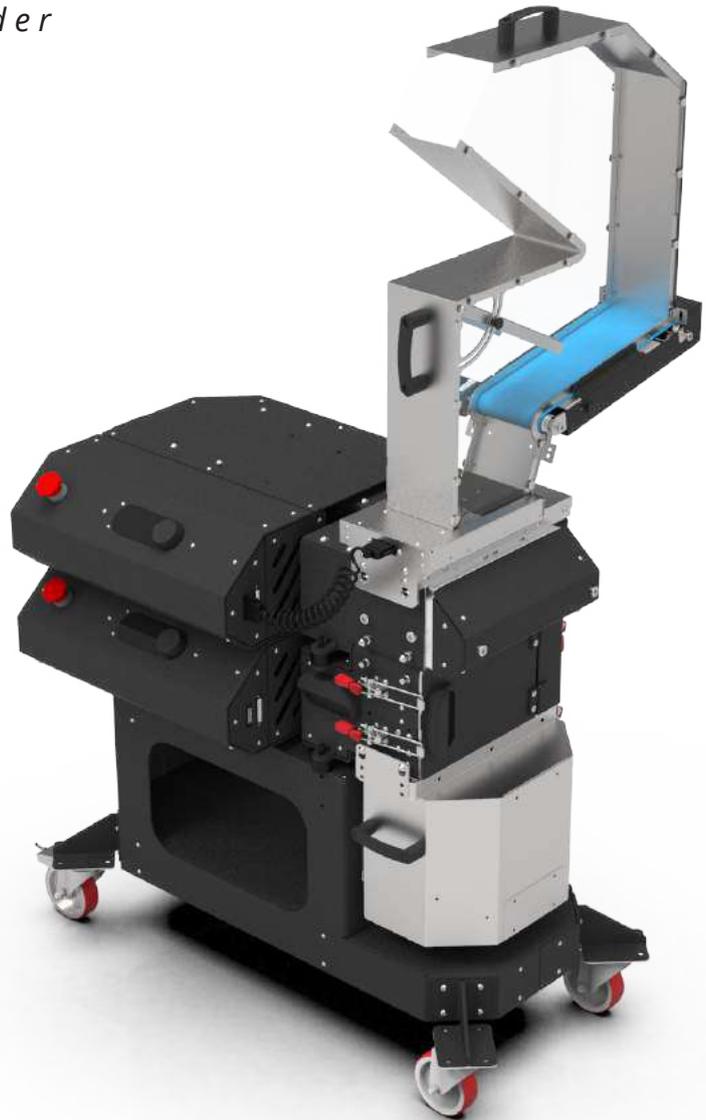
Go ahead and start printing! It's that simple to transform old prints into filament and new filament into fresh prints - all in just a desktop-sized form. Feel great about taking part in a sustainable approach to 3D printing by recycling!

**NEW  
LAUNCH!**

# GP20 HYBRID PLASTIC SHREDDER

*The smartest plastic shredder*

The functionality of the GP20 hybrid gives you the freedom & flexibility to fit into any project within any industry. With an automated system, sit back as the shredder and granulator's hardware and software work together to get your material to your desired size.



## EFFORTLESS RECYCLING

Convert plastic waste into high-quality 3D printing granules of any desired size in just one run. Designed for effortless operations, the GP20 features customizable components like the shredder blades or filter screen size. These accessible compartments facilitate cleaning and eliminating the contamination of materials.

**4 KG / HOUR**

PET water bottles

**8.6 KG / HOUR**

ABS injection molded parts

**29 KG / HOUR**

Pre-shredded PLA filament

# AIRID POLYMER DRYER

*Eliminate moisture complications*

If you work with hygroscopic plastics, then you know how easily it absorbs moisture. The polymer chains that form the plastic allow for the moisture to slip inside. Moisture can happen instantly, but drying takes a while. Your pellets aren't going to become dry immediately. Depending on the level of moisture and types of plastics, it could take hours for your load to dry out.

Luckily, 3devo's drying system works quickly. In fact, it can dry up to 1 Kg of pellets within 3 hours.

## CUSTOMIZE

Air flow,  
temperature and  
stirring speed

## PRESETS

Available  
for standard  
materials

## 5 LITERS

Hopper volume

## 1KG/3HRS

Drying capacity  
for PA6



Learn more at [3devo.com/LearnMore](https://3devo.com/LearnMore)

# COMPOSER AND PRECISION DESKTOP FILAMENT MAKERS

*A Complete Filament Production Line. Packed into one machine.*

Our filament makers are specialized, result-oriented machines with industrial quality power. Making materials simpler than ever to work with, while offering even more possibilities in manufacturing and innovation.

Give yourself the freedom to create your own custom filament. Increase control over your filament and minimize material waste and shorter time leads.

#### TEMPERATURES

Handles temperatures up to 450 °C

#### ADVANCED HEATING SYSTEM

Each heater is handcrafted in-house to ensure top quality.

#### NEATLY SPOOLED FILAMENT

Create custom spool dimensions with neatly rolled filament - every time.

#### CONTROL PANEL

Easily accessible display settings with standard material pre-sets

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## DEVOVISION

*Visually understand your material.*

There isn't a better pair than our filament makers and DevoVision. DevoVision makes it easy to analyze filament in real time through software integration. Simplifying workflows while maximizing productivity.

DevoVision is the first of its kind application to show an overview of your extrusion history, allowing you to compare previous extrusions to find the settings that work for your application. You can say goodbye to having to estimate and predict certain setting – Now, you simply can retrieve old logs and replicate the same outcome. Desktop extrusion has never been easier.



## COMPOSER FILAMENT MAKER

*Designed for mixing*

The Composer Series targets material mixing and experimentation, allowing innovators to develop custom filament from a wide variety of polymers and additives. With a mixing screw, this delivers quality material compounding. The Composer Series is ideal for:

- RESEARCH AND DEVELOPMENT
- COMPOUNDING
- EXPERIMENTING

## PRECISION FILAMENT MAKER

*Designed for production*

The Precision Series enables mass production of 3D printing filament with improved speeds and diameter accuracy. With a high-flow extruder screw, this allows the filament to be produced at high speeds while maintaining diameter precision. The Precision Series is ideal for:

- PRODUCTION
- MASS MANUFACTURING
- ACCURACY



# FILAMENT TAILORED TO YOUR NEEDS.

*Any material. Anytime.*

3devo brings together the resources and expertise for advancements in design, materials, and experimentation for one of the most famous additive manufacturing technology - FDM printing.

Our wide-range in material settings have been extensively tested by our engineers so that you can produce the best results. Here are a couple of our most popular materials:

## **PLA**

Low temperature, low cost, biodegradable

## **ABS**

Low-cost and durable

## **PETG**

Durable, transparent

## **TPE**

Rubber-like behavior with thermoplastic processability

## **TPU**

High flexibility, high durability

## **NYLON (PA)**

Flexible, durable, excellent surface finish

## **PC**

Lightweight, transparent

## **PVA**

Water soluble and biodegradable

## **PEI**

High strength and high thermal stability

## **PEEK**

Outstanding mechanical strength, thermal resistance, chemical stability



*\* Listed above are just a few of our most commonly used materials for extrusion*

# MAKE YOUR FILAMENT STRONGER, LIGHTER, FASTER, AND BETTER

*Through additives.*

With our Composer series, you can develop unique filaments that can assist in your discovery in application performance. Be the creator of your own customized filament, through the use of additives.

## WOODFILL

Woodfill gives 3D prints the look and feel of wood and can also even offer a smell. Adding a touch of softness to the filament.

## COLORANTS

Colorants give pigment to the filament. The colorant added must be compatible with the virgin polymer.

## CARBON FIBER

Carbon Fiber increases the properties-to-weight ratio, making 3D prints lighter and dimensionally stable for structural applications.

## GLASS FIBER

Glass fiber is a great reinforcement to increase mechanical strength and dimensional stability.

## METAL POWDERS

Metal Powders add weight, while giving filament the look of metal. Causing parts to look like aluminum, copper, or gold.

## CARBON NANOTUBES

CNTs improve the strength and the properties-to-weight ratio of the composite. They are also the solution to print conductive parts.

## CERAMIC

Ceramic fillers can dramatically increase the thermal resistance and dimensional stability of the composite.

# DEVO CARE

## Comprehensive Service and Warranty Plan

Maximize efficiency while minimizing downtime. DevoCare fully supports businesses, institutions, and professionals who use 3devo products for education, research, material development, or manufacturing. We understand time is valuable, that is why DevoCare is a one-stop for service and support from 3devo experts, so most issues can be resolved immediately.



### PRIORITY EMAIL SUPPORT

Quicker responses to support emails, queries and complaints.



### PERSONALIZED ONLINE TRAINING

Receive a 45-minute orientation on using your 3devo Filament Maker.



### MACHINE REPLACEMENT

Hot-swap feature for filament makers needing off-site repair.



### PHONE SUPPORT

A dedicated hotline for urgent support, connecting you to 3devo engineers and material scientists.



### ENTERPRISE DEVO CARE

Get top-tier service and extended warranty for your fleet of filament makers, shredders and dryers.

# DEVOTRAINING

*Learn about filament extrusion  
from the professionals!*

DevoTraining is an in-depth, hands-on workshop on desktop filament extrusion. Helping to equip you with practical and up-to-date knowledge of filament making and plastic recycling. Guiding you towards solutions by our team of engineers and material scientists. Whether you're an expert or just beginning to experiment with materials - there's a course dedicated to your needs.

## WORKSHOPS

3 customizable programs, varying from getting started to becoming an expert in filament extrusion.

## LOCATION

1-2 day workshops organized at 3devo headquarters, Utrecht, with all materials and resources provided.



## COURSE LEVELS

### **DEVONOVICE:** *Beginner - Half Day*

If you are looking for a course that shows you how to operate your filament maker and make standard filament, then DevoNovice is ideal for you.

### **DEVOPROFICIENT:** *Intermediate - 1 Full-Day*

This full-day course dives deep into compounding, troubleshooting and maintaining your filament maker.

### **DEVOMASTER:** *Advanced - 2 Full-days*

Are you working with high-performance materials and need to reduce filament fluctuations? DevoMaster will guide you through advanced extrusion methods in just 2 days.

We also offer **customized training** courses to meet your personal needs. Check it out here:

Learn more at [3devo.com/LearnMore](https://3devo.com/LearnMore)

# FILAMENT MAKER

## Product Specifications

<b>Heating System</b>	Temperature max.	350 series max temperature of 350 °C 450 series max temperature of 450 °C
	Band heater	Ceramic
	Heating zones	4
	Independent controls	Yes
<b>Output</b>	RPM range	2- 15 RPM
	Filament diameter range	0.5- 3 mm (0.02- 0.12 inches)
	Optical sensor accuracy	43 microns (1.69 mils)
	Nozzle extruder	Diameter 4 mm (0.16 inches)- Replaceable
<b>Extruder System</b>	Screw/Barrel alloy	High chromium and molybdenum steel alloy
	Hardening treatment	Nitrided
	Compression	3 stage
	Extruder design	Swappable
	Material mixing zone	Composer series ONLY
<b>Energy</b>	Consumption average	300- 400 W
	Consumption max.	1300 W
	Voltage	110- 230 V
	Frequency	50- 60 Hz
<b>Capacity</b>	Hopper volume	2 liters
	Spool holder	1
	Spool size	Diameter 240 mm (9.4 inches) Width 120 mm (4.7 inches)
	<b>Size &amp; Weight</b>	Dimensions
Weight		Extruder (Without box) 24.5 kg (54 lbs) Extruder + box 27 kg (59.5 lbs)
<b>Connection</b>		Firmware updates
	Extrusion data analysis	<i>DevoVision</i> application

# FILAMENT MAKER MODELS

## Material Applications

<b>Composer Series (350 &amp; 450 Models)</b>	Purpose	For mixing, compounding & experimentation
	Screw	Mixing screw
<b>Precision series (350 &amp; 450 Models)</b>	Purpose	For high-quality mass production
	Screw	High-flow screw
<b>Models</b>	<b>350 model</b>	Max temperature of 350 °C for engineering polymers PLA, ABS, PC, PS, PETG, TPU, TPE, PPS, PVA, Bio PE, NEW PET and PA (6,12, 66)
	<b>450 model</b>	Max temperature of 450 °C for engineering polymers <b>AND</b> high-performance polymers PEEK, PC, PS, PEKK, PAEK, PEI, PSU, PES, PTFE, PVD+

\* Achieved with PLA Natureworks 4043D (MFR, g/10 min = 6 at 210 °C/2.16 kg )

# GP20 HYBRID PLASTIC SHREDDER

## Product Specifications

<b>Internal</b>	Default filter screen	3.5 mm
	Total shredder blades	14 blades (Combination of 2, 3 and 7 teeth blades are possible)
<b>Intelligent Features</b>	Smart control	Yes
	Material specific settings	Yes
<b>Energy</b>	Consumption	AC 110V–120V 50/60Hz - 3000Watt AC 220-240V 50/60Hz -2400Watt
<b>Size &amp; Weight</b>	Dimensions	95 x 75 x 145 cm
	Dimensions of top hopper opening	120x114 mm
	Weight	125 kg
<b>Cleaning Rating</b>	On a scale 1-10 (Compared to the SHR3D IT)	9/10

# AIRID POLYMER DRYER

## Product Specifications

<b>Hopper</b>	Volume	5 liters
	Assembly	Quick-release
	Drying capacity	1kg / 3 hr (for PA6)
	Hopper material	Stainless steel polished
<b>Temperature</b>	Stable temperature control	Up to 160 °C
<b>Materials</b>	Compatibility	Granulates, flakes and powders
	Material pre-sets	PLA, PA6, PA66, TPU, PC, and PEEK
	Settings	Presets for standard materials
	Material amount	Recommendation: 1 to 3 kg
<b>Energy</b>	Consumption	900 W
	Voltage	220- 230V
	Frequency	50- 60 Hz
<b>Accessibility</b>	Clean	Easy to clean
	Stirring	Integrated stirring mechanism: Adjustable speeds
	Air flow	Adjustable



***3devo***

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**MORE INFO**  
[www.3devo.com/LearnMore](http://www.3devo.com/LearnMore)