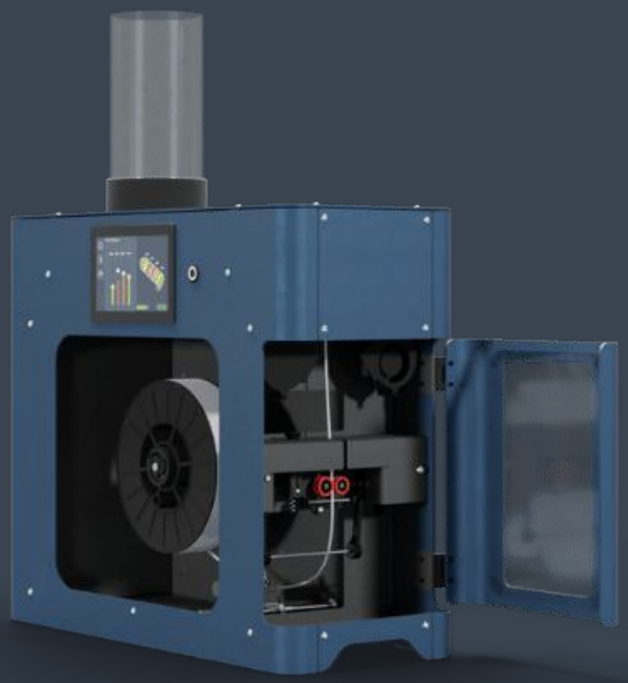
Filament Maker TWO

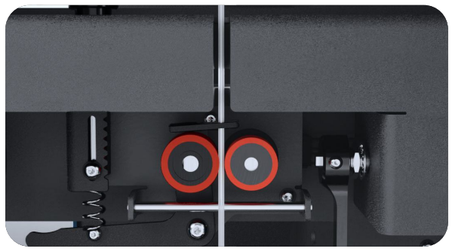


NEW! Custom product development

You can now work together with our R&D department to develop unique projects tailored to your application. For example, an extended cooling path or unique screw designs that can focus on mixing or production.

New Features

Enhanced extrusion control

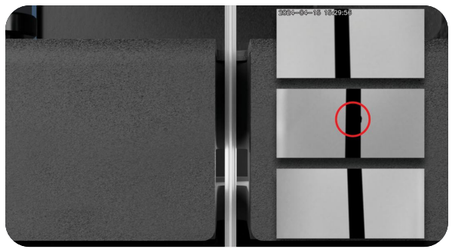


- More powerful drive
- Automatic tensioning & 3kg spools
- Touchscreen UI
- New cooled hopper & new puller wheel
- Longer screw & more powerful heaters

Easier access for repairs

- Easily removable nozzle
- Easily removable parts
- Accessible troubleshooting

Advanced data monitoring



- Advanced filament sensor
- Filament thermal measurement
- Database access
- Automatic spool fullness detection
- Optimal temperature stability

Future proof technology

- Open source API
- Adjustment ready
- Future customization

More details

Specifications

Size

Dimensions	606 x 258 x 526 mm
Height with Hopper	782 mm
Weight	42 kg

Extrusion Drive

Max Motor Torque	4.5 Nm
Max Gearmotor Torque	40 Nm
Max Permissible Torque	50 Nm
Gearbox ratio	1:30
Screw RPM	0 - 15 RPM

Hopper

Angle	23.5 °
Volume	2.88 L
Sensor	Yes

Ceramic band heaters

Heaters Max. Temp	450 °C
Heating Zones	4
Heater Power	230W per heater
Thermocouple Resolution	0.25 °C

Filament Sensor

Resolution	10 µm
Measurements	> 25 per second
Measurement directions	3

Advanced Details

Improved stability and control over the extrusion process

More efficient drive

Extruder drive got upgraded with a more powerful motor and gearbox combination, resulting in 3 times more torque (50Nm), a more stable drive, an optimal L/D ratio and close to zero RPM fluctuation.

Automatic tensioning & 3kg spools

Just chuck it and the auto tensioner does the rest: the winder system now has automatic filament tensioning, preserving equal filament tension throughout the entire spool making it easier to create high quality spools, up to 3 kg.

Longer extruder screw

Extended by 50mm.

More powerful heaters

Faster heating and stabilizing.

Touchscreen UI

Easier machine control with an intuitive touchscreen user interface. Access settings, monitor progress, and make adjustments seamlessly. There's relevant extrusion data and notifications displayed on the user interface, including extrusion tips and guidance.

Cooled hopper

New hopper design (increased slope, shape and smoothness) with its own temperature sensor that can be read real-time or in the data log any time at a later moment. There's active cooling, so the material can remain intact when in the hopper, no matter how hot the FM2 gets.

New puller wheel

The puller wheel has been improved to ensure more wear resistance and control over the clamping tension between the rollers, preventing filament from getting flattened or losing grip. There's also a new non-stick option for materials with high melting temps.

Easier access for repairs

Easily removable nozzle

Insulated well and placed directly on the die-head instead of being connected to a brass elbow fitting, it ensures better heat control and can be replaced by simply pulling it off.

Accessible troubleshooting

Machine housing is easier to take apart: casing is split in plates devoted to accessing certain parts while the feet and the connector are integrated into the chassis, so the machine remains stable with the panels removed.

Easily removable parts

The screw, the die-head and the insulation sleeve are easily removable, so they can be thoroughly cleaned or repaired by the user, without having to send the machine back to us.

Specifications

Compression Screw

Total Length	476 mm
Effective Length	355 mm
Screw Diameter	20 mm
Screw Material	38CrMoAlA
Nitride layer	0.4 – 0.7 mm
Hardness	>= 900 HV
Brittleness	<= Grade 2
Compression ratio	2,25
L/D ratio	17,75

Puller

Low Temp Material	Polyurethane
Low Temp Max Temp	100 °C
High Temp Material	HT Silicone
High Temp Max Temp	380 °C

Spool

Inner Diameter	49 - 55 mm
Max Diameter	300 mm
Max Width	100 mm
Max Weight	3 kg

Power

Consumption Average Consumption Max	300 – 400 W 1300 W
Voltage	230 V or 110 V
Frequency	50 – 60 Hz
Networking	Ethernet

Advanced Details

Advanced data monitoring

Advanced filament sensor

The new 3-axis camera sensor enables users to measure the ovality and diameter of the filament, with an accuracy of 10 microns. Whenever it picks up QC-failed filament it takes a snapshot to give insight to the user. Overall the sensor 5 times more accurate and 100 times faster than the FM1.

Database access

Real time data logging and visualization, with the ability to control the machine from a PC app through USB or remotely through an internet connection. You can access data up to a month before, with the option to download from a specified date and time.

Automatic spool fullness detection

Spool rate is now being detected, to give insight into the fullness of the spool.

Filament thermal measurement

Using a built in infrared thermal camera.

Future proof technology

Open source API

A REST API is available, enabling users to control process parameters and implement custom development projects. This data API allows you to integrate all logged data from the FM2 into your own data analysis software, such as InfluxDB, for further research and development.

Adjustment ready

Built as a platform, offers adjustable settings & filters that can be programmed and tailored to the customer needs. You can expect continuous software updates coming from us according to your feedback. Updates like automatic contamination detection and other new software will be installed over time.

Future customization

There are two CAN bus connectors integrated on the FM2 that allow 3devo and users to customize the machine. The hopper design also allows itself to easily screw on different attachments that could potentially interact through one of the CAN bus connectors; like dosing mechanisms, feeding mechanisms, mixing mechanisms and so on.