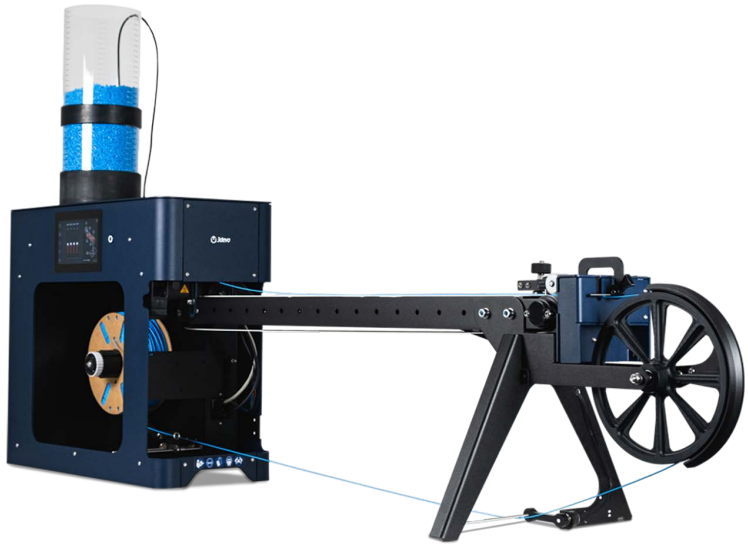
Filament Maker X10

The production-grade filament maker. Become your own filament supplier.



Runs Itself
Autonomous production, designed to run 24/7

1.5 kg/h
Production throughput (ref. value: PLA)

450 °C
4-zone heating at ±0.1 °C stability

±30 µm
Filament diameter accuracy (ref. value: rPA12 + CF)

2.80 m
Total filament cooling path

WHY THE X10

Fully Automatic - Remotely Monitored

Automated closed-loop control adjusts extrusion in real time to hold your set diameter, using live readings from the in-line sensor. No manual tweaking mid-run, and no need to stand next to the machine. Check in remotely from wherever you are.

Powder, Regrind & Abrasive Materials

The SmartFlow Hopper's Vibration Feeder keeps regrinds and powders, including MJF/SLS waste, flowing without bridging, while a tempered DC53 tool-steel screw and hardened nozzles stand up to abrasive, filled compounds run after run.

A Longer Cooling Path

The filament travels 2.80 meters from nozzle to spool. (1m silicone conveyor belt + 1.8m return to spool). This gradual cooling unlocks 5x the output of Filament Maker TWO, making low-viscosity and recycled materials far easier to run at speed.

Measured After Cooling, Corrected Automatically

The 3-axis sensor sits at the end of the cooling path, after shrinkage has settled, feeding straight back into the loop. Its scan rate is tuned specifically for production-scale output, built to keep pace with continuous runs. ±30 µm tolerance held on the spool.

SYSTEM CAPABILITIES

- **Cooling Path**
  2.80m total cooling path (1m silicone conveyor belt + 1.8m return to spool), tensioner arm for consistent tension, wheel cover for highly filled materials.

- **Tempered extrusion screw**
  Through-hardened DC53 tool steel, 58–62 HRC, 17.75 L/D, 2.25 compression ratio, built for abrasive and filled compounds.

- **High-torque extrusion motor**
  Encoder-equipped: 48 Nm @ 3 RPM, 40 Nm @ 15 RPM, 0.1 RPM stability with instant stall detection.

- **Locking spool holder**
  Auto-locking, left-to-right precision winding for spools up to 3 kg / Ø300 mm. Spool fullness detection, remote monitored.

- **Extrusion System**
  Actively cooled barrel with smart feed-zone cooling, enabling specifically controlled zone temperature. Designed for continuous 24/7 extrusion.

- **SmartFlow Hopper**
  7.25 L smart hopper for powders, regrinds and pellets. Vibration Feeder with preset-linked vibration (50–350 Hz) eliminates bridging; holds enough for a full 3 kg spool.

- **3-axis filament sensor**
  10 µm resolution · more than 25 measurements per second, integrated infrared camera for surface temperature, ±30 µm on-spool tolerance (ref. rPA12 + CF). Measures diameter and ovality, feeding the automated control loop.

- **4-zone heating & touchscreen control**
  Four independent heating zones up to 450 °C at ±0.1 °C, with on-machine touchscreen and material presets.

TECHNICAL SPECIFICATIONS

Extrusion speed	Up to 25 RPM
Throughput	5× vs. FM2 · up to 1.5 kg/h (ref. PLA) · varies per material density and settings
Process control	Fully automatic closed-loop control · Automated control loop holds the set diameter from live sensor quality readings · no manual tuning during runs
Heating	4 independent zones · up to 450 °C · ±0.1 °C temperature stability
Feed zone	Active cooling · specifically controlled zone temperature
Continuous operation	Designed to run 24/7 · validated with PEEK
Screw	Tempered DC53 tool steel · 58–62 HRC · 17.75 L/D · 2.25 compression ratio
Motor	48 Nm @ 3 RPM · 40 Nm @ 15 RPM · 0.1 RPM stability · encoder stall detection
Hopper	SmartFlow 7.25 L · powders, regrinds & pellets · Vibration Feeder, preset-linked 50–350 Hz
Cooling path	2.80m total cooling path (1m silicone conveyor belt + 1.8m return to spool) · tension control
Filament Sensor	3-axis measurement · 10 µm resolution · more than 25 measurements per second · integrated infrared camera for surface temperature · ±30 µm on-spool tolerance (ref. rPA12 + CF)
Winding	Locking spool holder · spools up to 3 kg / Ø300 mm · spool fullness detection, remote monitored
Nozzle	Ø2/3mm · E3D Copper, nickel coated (~300 W/m·K, up to 450 °C, for high-temperature materials such as PEEK) · E3D Hardened Tool Steel, nickel coated (~50 W/m·K, 60–65 HRC, for abrasive and filled compounds)
Dimensions (L × W × H)	1785 × 400 × 692 mm — including conveyor and winder (see page 3)
Weight	57 kg (125 lb)
Power	110 V / 230 V versions
Connectivity	Plug-and-play setup · remote monitoring & operation through Ethernet connection · process data logged per spool · multiple machine management dashboard

DIMENSIONS

Overall dimensions of the FMX10 including the Cooling Path, as installed: 1785 mm long, 400 mm wide and 692 mm high.



Allow additional clearance around the machine for operation, spool changes and hopper refills.

CONTACT

Multistation SAS
www.multistation.com
multistation@multistation.com
+33 (0)2 99 16 35 35