Modix Big60 V3 & Big120X V3— Technical Specifications
## Component Dream Team, A House of Brands

Print Head

- E3D Aero Extruder, made in UK
- E3D V6 Volcano high flow Hotend
- E3D V6 accurate — optional
- E3D Super Volcano — optional
- Max Temp — Default 285°C, 400°C optional
- Single or dual extruder (optional)
- Volcano nozzles included : 0.4, 0.6 & 0.8 mm
- Larger & smaller nozzles diameters available

Print Bed

- Alcoa Mic6 milled aluminum plate, USA Plate size 660x660 mm (Two plates in Big120X)
- Autonic PID temp controller, South Korea
- AC-powered silicone heater, 120°C Max temp
- Auto bed levelling — 100 probing points (200 points for Big120X)
- PEI Sheet with 3M adhesive
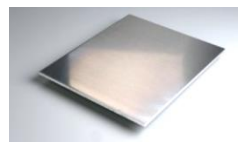
Motion System

- Genuine Hiwin MGW9H motion rails, Taiwan
- Gates PowerGrip 9mm GT2 timing belts, USA
- All axis Stepper motors Motech MT-1705HS200A holding torque 8.2 kg/cm (114oz) 1.8 degree
- Z axis: 4 x Belt geared steppers (MT-1705HS200A) each attached to a ball screw SFU1204

Electronics

- Duet2 WiFi 32-Bit, made in UK
- 7inch Touch screen
- IGUS Chainflex signal cables, Germany
- Meanwell 280W 24V Power Supply, Taiwan
- AC voltage compatibility: 230V / 110V

Printing Specifications

- Big60 Build Volume: 600x600x660mm
- Big120X Build Volume: 1200x600x660mm
- Resolution: X:10µm Y:10µm (Micron)
- Z axis resolution: 0.5 µm (0.0005 mm)
- Layer Height: 50-800 Micron
- Print Speed – up to 100 mm/s
- Filament run-out detection sensor
- Default filament diameter — 1.75 mm
- Open filament system — use any brand
- Supported filament types — E3D print head supports almost any existing filament

Printer Specifications

- Big60 dimensions: W:906 H:1356 L:1060 (mm)
- Big120X dimensions: W:1556 H:1356 L:1025 (mm)
- Self assembly kit — optional assembly services
- 1-Year warranty and lifetime support
- Connection — WiFi, SD, USB (PC)
- Firmware — Duet 3d RepRap Firmware
- Software: Slic3r, Cura or Simplify3D…
- Closed enclosure — optional

Product Overview

Print Head

Our print head is sourced from E3D, a market leader from the UK. This high-end print head is widely supported by filament vendors, providing compatibility with almost any type of filament. The modular print head allows various configurations that can meet your very specific 3D printing preference. http://E3D-Online.com

E3D Titan Aero Extruder—The Titan Aero is the compact combination Hotend and Extruder from E3D. Shorter and stronger proven design. 40mm cooling fan and bigger heat sink will reduce potential clogs. https://www.youtube.com/watch?v=dIZCfnRanSk

Titan Aero Extruder

E3D V6 Hotend—The famous E3D V6 is a leading modular ecosystem of various high quality Hotend components. This allows a high level of customization that can meet any printing need. Our offering includes the high flow version of the E3D V6 named Volcano and three Volcano brass nozzles: 0.4, 0.6 and 0.8mm diameter. For the Big120X our offer also includes a 1mm diameter nozzle.

V6 standard vs Volcano

Additional nozzles — Due to its vertical and longer melting zone, the Volcano allows faster printing with larger nozzle diameters. The available Volcano nozzle diameters are: 0.4, 0.6, 0.8, 1.0 and 1.2mm. Switching to the standard V6 setup will allow you smaller nozzles of 0.35mm, 0.3 and 0.25mm.
https://e3d-online.com/nozzles-for-3d-printer/volcano-nozzles

Optional Configurations (DIY):

Super Volcano

E3D V6 standard Hotend – Suits very accurate prints, slower than the default Volcano.

E3D V6 Super Volcano Hotend – Suits very large prints, faster than the default Volcano.

Higher Temperature — The default V6 thermistor supports temperatures of up to 285°C. With the optional PT100 thermistor you can go higher up to 400°C.

PT 100

Carbon Fiber and other abrasive filaments — The carbon fiber-filled filament is a popular choice for strong printed parts. However, due to its abrasive nature, the carbon-filled filaments can damage the nozzle tip and reduce both print quality and accuracy.
A company from Sweden is offering a special set of nozzles with a wear-resistant ruby tip.

Check: http://olssonruby.com/
Another option is: https://e3d-online.com/nozzlex-volcano


Olsson Ruby nozzle

2.85mm Filament Diameter — The 1.75mm diameter is considered the current market "standard" for filament diameter. In comparison with the thicker 2.85mm, the 1.75mm has a much wider filament variety. 1.75mm is also faster to melt based on its better core-to-surface ratio and it is more flexible, making it easier to maneuver inside the enclosure. Switching to 2.85mm is possible.

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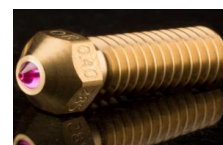
Print Bed

Mic 6® Aluminum Cast Plate — Is our choice for the bed plate. It is made in the USA by a company named Alcoa. The manufacturing of this tooling plate is one of the most advanced in the cast plate industry and it's well known for its flatness due to a high quality milling process.
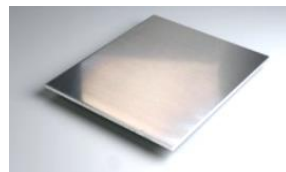
PEI sheet — PEI (Polyetherimide) is one of the best options for the 3D printing build surface. It is reusable, does not require additional glue on it and it provides a great gripping force that reduces the risk of warping 3D printing objects. We supply a 660x620mm sheet size that is large enough to cover more than the actual printing build volume. It comes ready to apply with a 3M adhesive sheet.
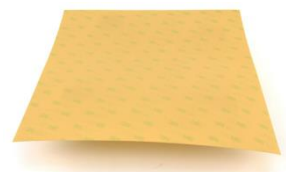
Autonics PID controller — This temperature controller keeps the bed at a constant temperature all the way through the printing process. A stable printing temperature is important for a smooth printing surface and in order to avoid warping.
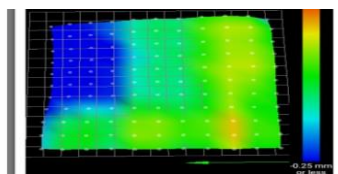
Dual Zone Silicone heater — The print bed heater is divided into two heating zones. The smaller inner heater at a size of 20x20cm allows printing of small objects with minimal energy consumption.

Insulation — A 6mm thick silicone foam attached to the heater bottom provides both energy efficiency and temperature stability, especially during cold seasons.

*Modix Big120X printer bed is powered by two print beds as above side by side.

Automatic Bed Levelling

Automatic bed levelling — Both Modix Big60 & Big120X provide automatic bed levelling that makes a perfect first layer, no matter what size your model. During the bed leveling process, a BL-Touch sensor measures 100 points all across the bed (200 points for Big120X). This process generates a 3D map that compensates for tiny differences in the bed shape.
This map is stored in the controller memory and activated before printing.

Bed levelling sensor — our default bed-levelling sensor is a BL-Touch sensor. It runs well on the aluminum bed as well as on glass (for those who prefer it). BL Touch is a solenoid sensor that measures the bed by the touch of a pin.
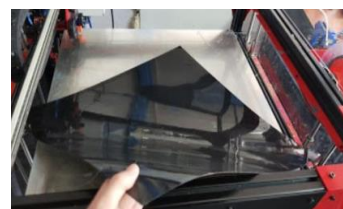
Optional Add-ons

Closed Enclosure — Add on

Closed ACP Enclosure — This optional add-on is important for keeping a stable temperature around the printed model. When a print begins, the air temperature around the model is affected by the hot print bed, but as it grows in height, it becomes cooler. These temperature differences can lead to warping issues and even cracks in the model. Enclosure is important, especially in a cold and windy production environment. The enclosure covers all sides of the printer and includes a top lid and frontal doors.
Another benefit of the enclosure is that it protects against dust and dirt entering into the motion system components.

Printing with ABS — ABS and several other filament types are prone to a high level of shrinkage during cooling. When printing large models, even a small shrinking percentage may result in considerable shrinking. Thankfully, several premium filament vendors have developed "easy to print" versions of popular filaments such as ABS. One particular vendor we are happy with is Formfutura and their line of "EasyFil ABS" which provide limited warping: https://www.formfutura.com/page/products

You may also consider ABS alternatives such as Co-Polyester-based filaments. Colorfabb is a good starting point: https://colorfabb.com/materials/co-polyesters

Printing with high Temperature Industrial Filaments — Although the print head is compatible with high temperature printing of up to 400°C (with PT-100 upgrade), several high temperature filaments require an active heated chamber in order to print well. The optional closed enclosure helps to stabilize the ambient temperature around the printed model, but it might not be enough for all types of industrial filaments. Please consult filament vendors for the required printing spec.

Secondary Print Head — Add on

Dual Configuration — The main print head is configured as a direct drive print head; in a direct drive, the extruder is located right above the Hotend. This allows for very accurate printing and easier flexible filament printing. The optional secondary print head is configured as a direct drive print head as well.

Height calibration —A fine tuning thumb-nut allows for precise tuning.
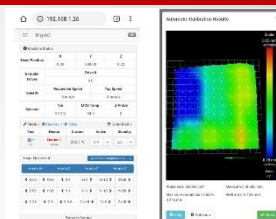
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Software

Firmware – RepRap Firmware – developed and supported directly from the same vendor of the controller electronics, Duet3D. Duet3D is a commercial company with OEM support. The new firmware allows easy configuration (no need to compile), advanced macro settings etc. https://reprap.org/wiki/RepRap_Firmware

Slicing Software – Modix users can enjoy a large variety of slicing software. Slic3r and Cura are free and Simplify3D costs US$150. Simplify3D is a great software that can manipulate much of the support structure and provides overall better and faster printing. Slic3r   Ultimaker Cura   Simplify3D.

Within the Modix Customer Zone, you can download printing profiles for Big60 & Big120X.

Assembly & Support

Modix provides an online self-assembly guide that contains photos, videos and 3D models that you can rotate, explore and explode for better understanding of the assembly process. The assembly instructions guide contains additional useful information that will provide you with a deeper understanding of the printer. Each assembly step contains a feedback form at the bottom. This form provides us with continuous feedback, resulting in a guide that's getting better all the time.

Our support team is available for rapid assistance at support@modix3d.com

Ordering & Logistics

Logistics — we ship the printers directly from our warehouse right to your door with express shipping companies such as DHL and Fedex, depending on the destination. There are six boxes for the basic offering, two boxes for the enclosure, one for the secondary print head. The total weight depends on the configuration, is up to ~120kg for the Big60, and up to ~140kg for Big120X.

Ordering Big60 / Big120X is possible in two ways: Through our online shop using a credit card, or with a wired bank transfer. Please contact our sales department for further details and inventory availability. Please contact us at: sales@modix3d.com