General Device Features Listing and Specifications

External Dimensions	54 cm width x 50 cm depth x 40 cm height
Printing Technologies	Syringe and/or Filament
Number of Tool/Material Bays	1,2, 3, or 4
Primary Fields of Use	Material Science, Tissue Engineering, 3D Cell Culture, Food Science, General Prototyping with software packages for each, as appropriate
Exemplary Materials	plastics, ceramics, silicones, food pastes, hydrogels, organic material, and novel research materials
Usability	Point and click software offers access to fundamental printing process at 'research level' without need for advanced coding or engineering knowledge. Unit is pre-assembled with no training required to operate. Uses standard wall outlet. Disposable and sterilized cartridges available, sterilizable work surface.
Positioning Accuracy	10 µm
Maximum travel speed	130 mm/s
Typical travel speed	80 mm/s
Build Dimensions (x/y/z)**	127mm, 200mm, 65mm
Reservoir volume	Nordson EFD or Becton Dickenson Syringes 3-55 mL
Minimum tip diameter	0.004”/ 0.1 mm / 32 gauge (or any lure lock tip)
Maximum tip diameter	0.06”/ 1.54 mm/ 14 gauge (or any lure lock tip)
File Types	STL and XDFL

*Specifications may vary based on your unit’s specific configuration.

Tools and Accessories Listing and Specifications

Syringe Tools	Use 3-55mL Nordson EFD or 10ml Becton Dickenson syringes, needles, or taper tips to extrude material using pressure drive. 1,2, 3, or 4 syringe capacity tools available.
Plastic Filament Tool	traditional plastic 3d printing tool (1.75mm or 3mm filament options); Bowden Drive; 80 - 260C range
3D Cell Culture/Well Plating	use a specialized tool head and point-and-click software to easily run, design, or share complex cell culture protocols for automatic 3D cell culture in standard well plates without CAD or complex software/ procedures.
Heated build tray	External control (150 C max); useful in plastic printing, cell temperature regulation, and collagen crosslinking.
Syringe Head Heater	Regulate the syringe temperature (80 C max)
Cooled build tray	Peltier junction cooling system (-3.6 C min, 18.4C max)
Syringe Head Cooler	Regulate the syringe temperature (-3.6 C min, 18.4C max)
(UV) LED light tools	LED light source of selected source (e.g. 365 or 385nm), mountable in several configurations. Useful for hydrogel cross linking, among other uses. Illumination coordinated with printing process automatically or manually, depending on tool selected.
USB microscope tool	2 MP camera with 10-40x zoom; can be positioned to view work surface or tool head during printing. (May use multiple per printer.)

CUSTOM SOLUTIONS

Custom tools are available upon request for users needing specialized functionality. Help others cite your work by requesting that your custom tool is added to our standard accessories list, allowing others to easily build from your research.