



BAT SERIES TABLETOP BIOASSEMBLY TOOL



The nScript BioAssembly Tool (BAT Series) is a specially configured Tabletop system designed for **bioprinting** capable of dispensing all the ingredients needed to construct living tissue (biomaterials, living cells, growth factors, scaffolds, extracellular matrices, etc.) with exceptional flexibility and cell viability. Cell viabilities in excess of 95% are enabled by patented low shear stress nozzle designs, and flexibility is afforded by the "design and print" features of digital printing. The system employs **stainless steel surfaces** and includes up to **four independent devices** each utilizing nScript's patented technology integrated with **nVision calibration and guidance** in a **HEPA filtered** environment as options.

SmartPump™ 100 - Gen.2



The nScript SmartPump™ features discrete volumetric control down to 100 picoliters. The patented valve and nTip design provides unmatched control and precision enabling dimensions as small as 20 microns. A heated version can go up to 90C.

Recommended materials include:

- ⇒ Extracellular Matrix Materials (ECM)
- ⇒ Collagen Type I
- ⇒ Hyaluronic Acid (HA)
- ⇒ Polycaprolactone (PCL)
- ⇒ Living Cells (fibroblasts, endothelial cells, stem cells)

SmartPump™ 100 Spray Attachment

Connects to the nScript SmartPump™ 100 and utilizes directed air flow and patented nTips to coat surfaces with lower-viscosity materials.

Recommended materials include:

- ⇒ Collagen Type I
- ⇒ Nutrient Carriers



nFD™

The patent pending nFD™ has the ability to print thermoplastics with temperatures ranging from room temperature up to 400C. It provides the smallest resolution and smoothest surface finish. Compatible with standard industry 1.75mm diameter filament.

The same patented ceramic pen tip (as small as 10 um orifice) can be used and is interchangeable between nFD™ and SmartPump™.

Recommended materials include:

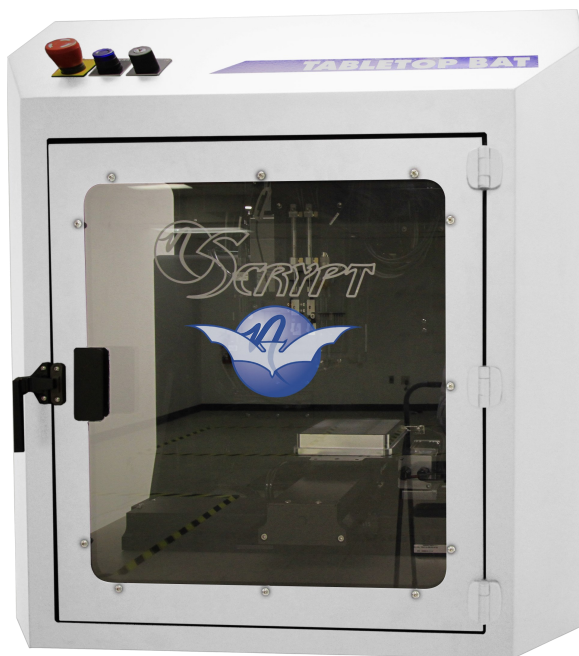
- ⇒ Wide range of bio polymers
- ⇒ Wide range of other thermal plastics

Pneumatic Pressure Pump

Pneumatically driven pump utilizes air pressure regulation for on/off dispensing control.

Recommended materials include:

- ⇒ Living Cells
- ⇒ Extracellular Matrix Materials (ECM)
- ⇒ Collagen Type I
- ⇒ HA



Motion System	Linear XY Stage
X/Y Drive System	Ball Screw/Brushless Servomotor
X/Y Printing Speed	Up to 100 mm/s
X/Y Travel Range	300 x 150 mm
X/Y Accuracy	± 5 µm
X/Y Bidirectional Repeatability	± 2 µm
X/Y Resolution	0.1 µm
Z Drive System	Ball Screw/Brushless Servomotor
Z Maximum Speed	100 mm/s
Z Travel Range	150 mm
Z Accuracy	± 5 µm
Z Bidirectional Repeatability	± 1 µm
Z Resolution	0.5 µm
Computer & Software	Commercial PC & Widescreen Monitor USB, Firewire, Ethernet, RS-232/485 nScript Machine Software
Cabinetry	Stainless steel base Stainless risers & cross-bridge Category 3 Safety Enclosure STRONGARM Workstation included Steel frame with leveling feet included
Dimensions (LxWxH)	37 x 37 x 37" (112 x 94 x 176 cm)
Weight	300 lbs (1361 kg)
Electrical Requirements	Single Phase, 120/240 VAC, 20 A
Compressed Air Requirements	80 to 120 psi, dry filtered air or nitrogen
Vacuum Requirements	2 m ³ /h minimum flow rate (if applicable)