



# BAT SERIES 3DN-300



## BIOASSEMBLY TOOL

The nScript BioAssembly Tool (BAT Series) is a specially configured 3Dn-300 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 **five independent devices** each utilizing nScript's patented technology integrated with **ηVision 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 ηTip design provides unmatched control and precision enabling dimensions as small as 20 microns. A heated version can go up to 90C.

Recommended materials include:

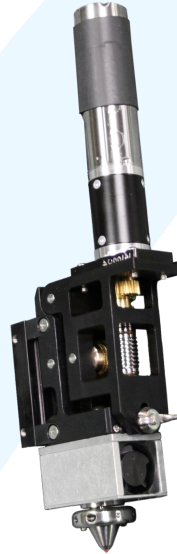
- ⇒ Extracellular Matrix Materials (ECM)
- ⇒ Collagen Type I
- ⇒ Hyaluronic Acid (HA)
- ⇒ Polycaprolactone (PCL)
- ⇒ Living Cells (fibroblasts, endothelial cells, stem cells)

### SmartPump™ 100 Spray Attachment

Connects to the nScript SmartPump™ 100 and utilizes directed air flow and patented ηTips 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 12.5um 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



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| <b>Motion System</b>                   | High Precision Linear Gantry Platform   |
| <b>X/Y Drive System</b>                | Linear Brushless Servomotor   |
| <b>X/Y Printing Speed</b>              | Up to 500 mm/s  |
| <b>X/Y Travel Range</b>                | 300 x 300 mm  |
| <b>X/Y Accuracy</b>                    | ± 5 µm  |
| <b>X/Y Bidirectional Repeatability</b> | ± 2 µm  |
| <b>X/Y Resolution</b>                  | 5 nm  |
| <b>Z Drive System</b>                  | Ball Screw/Brushless Servomotor   |
| <b>Z Maximum Speed</b>                 | 100 mm/s  |
| <b>Z Travel Range</b>                  | 150 mm  |
| <b>Z Accuracy</b>                      | ± 5 µm  |
| <b>Z Bidirectional Repeatability</b>   | ± 1 µm  |
| <b>Z Resolution</b>                    | 100 nm  |
| <b>Computer &amp; Software</b>         | Commercial PC & Widescreen Monitor<br>USB, Firewire, Ethernet, RS-232/485<br>nScript Machine Software   |
| <b>Cabinetry</b>                       | Stainless steel base<br>Stainless risers & cross-bridge<br>Category 3 Safety Enclosure<br>STRONGARM Workstation included<br>Steel frame with leveling feet included |
| <b>Dimensions (LxWxH)</b>              | 44 x 37 x 69" (112 x 94 x 176 cm)   |
| <b>Weight</b>                          | 2000 lbs (1361 kg)  |
| <b>Electrical Requirements</b>         | Single Phase, 120/240 VAC, 20 A   |
| <b>Compressed Air Requirements</b>     | 80 to 120 psi, dry filtered air or nitrogen   |
| <b>Vacuum Requirements</b>             | 2 m <sup>3</sup> /h minimum flow rate (if applicable)   |