

MICROFLUIDIC PRINTHEADS

EMPOWERING UNPARALLELED CREATIVE CONTROL



Precise pressure and valve control provide seamless switching between multiple materials and fine control over fibre diameter with a single printhead



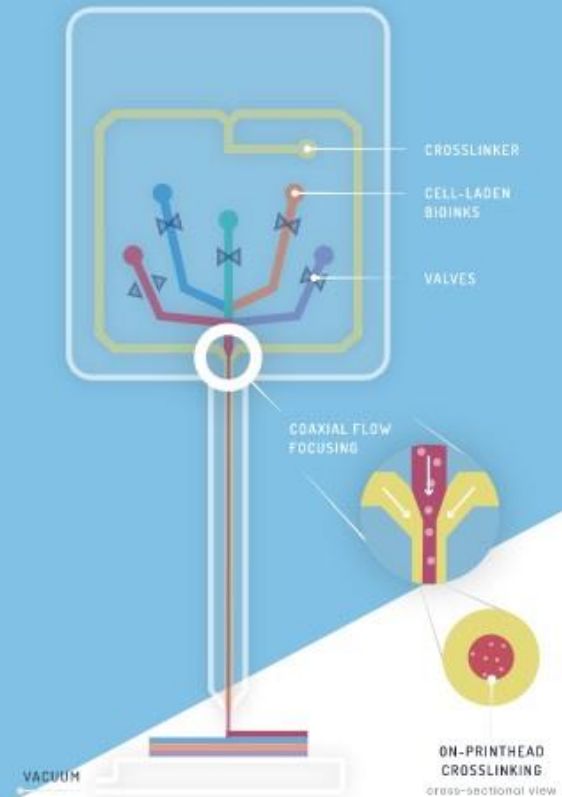
On-printhead crosslinking allows printing of a wide range of materials with high print fidelity, including low viscosity bioinks to mimic soft tissue microenvironments



Protective coaxial sheath minimizes shear stress on cells, which maintains high cell viability and preserves cell phenotype and function



Selection of microfluidic printheads provide functional flexibility, including the ability to print cell-laden, multilayered concentric fibres with a hollow core for perfusion



3D BIOPRINTING POWERED BY MIGHTY MICROFLUIDICS



Precise motion and pressure control enable microscale resolution at high speed



User-friendly software drives the design of highly customized structures



Flexibility of microfluidics allows for seamless cell and material patterning



Engineered to be **compatible** with a wide range of biomaterials

RX1™ BIOPRINTER



CUSTOMIZABLE BIOMATERIALS

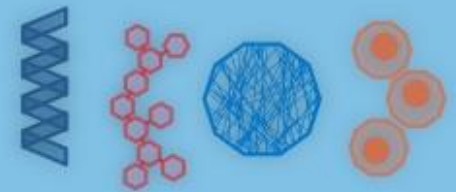
CREATING THE RIGHT ENVIRONMENT

Incorporate various biological components to **mimic microenvironments**

Pattern biomaterial **gradients and interfaces** to better emulate biology

Print with high fidelity using **low biomaterial concentrations** to allow diffusion and achieve high cell densities

Modulate **tissue matrix stiffness** while ensuring structural stability



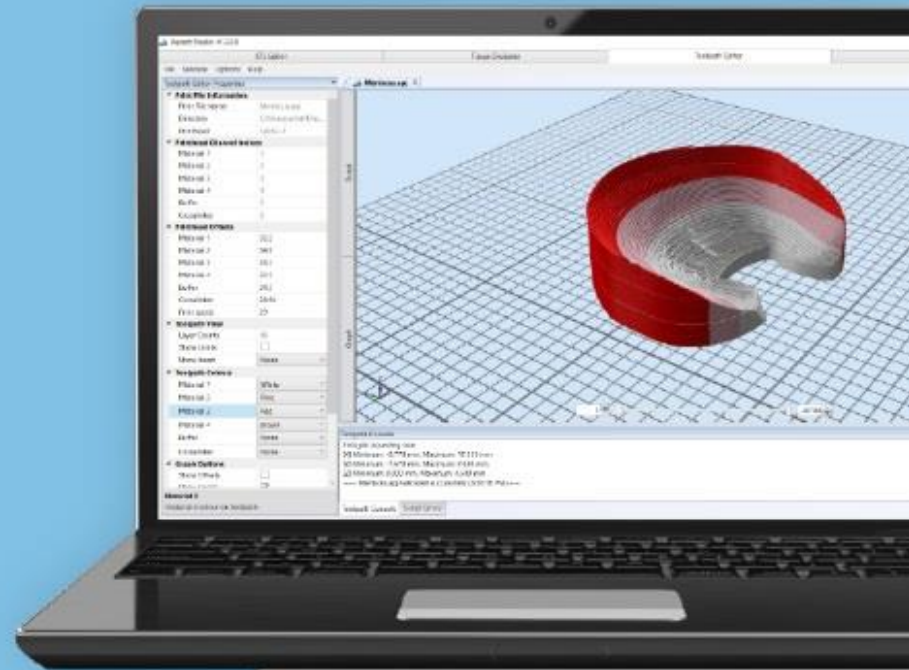
ASPECT STUDIO SOFTWARE

BALANCING EASE OF USE WITH DESIGN FLEXIBILITY

Designed to ensure **ease of use** while allowing **total design freedom** for greater customization

Smooth integration between design and print functions enables **easy tuning and optimization** of your design

Upgrades and training regularly provided to enable new functions and support new products



RX1™ Bioprinter:

Technical Specifications

Dimensions (D, W, H)

470 x 560 x 470 mm

Compatible with biosafety cabinets

Weight

36 kg

Printheads

Modular and disposable microfluidic printheads in sterile packaging

Print surface

Up to 90 x 150 x 70 mm

Modular: open surface or support for 6- and 12-well culture inserts

Axis resolution (x, y, z)

0.5 µm

Print resolution is printhead- and material-dependent

Printing speed

0.1 – 100 mm/s

Pneumatic control

6 independent material pressure control channels and

6 independent valve control lines

Pressure

0 – 500 mbar (± 2 mbar) for each channel

Recommended viscosity

1 – 1500 mPas

Other hardware features

On-board camera for printhead monitoring and diagnostics, integrated vacuum pump, insulated material reservoir for passive temperature control, HEPA filtered air intake, integrated air drier, integrated pump

Software

Aspect Studio

Included with system, along with upgrades and improvements

aspectbiosystems.com support@aspectbiosystems.com

