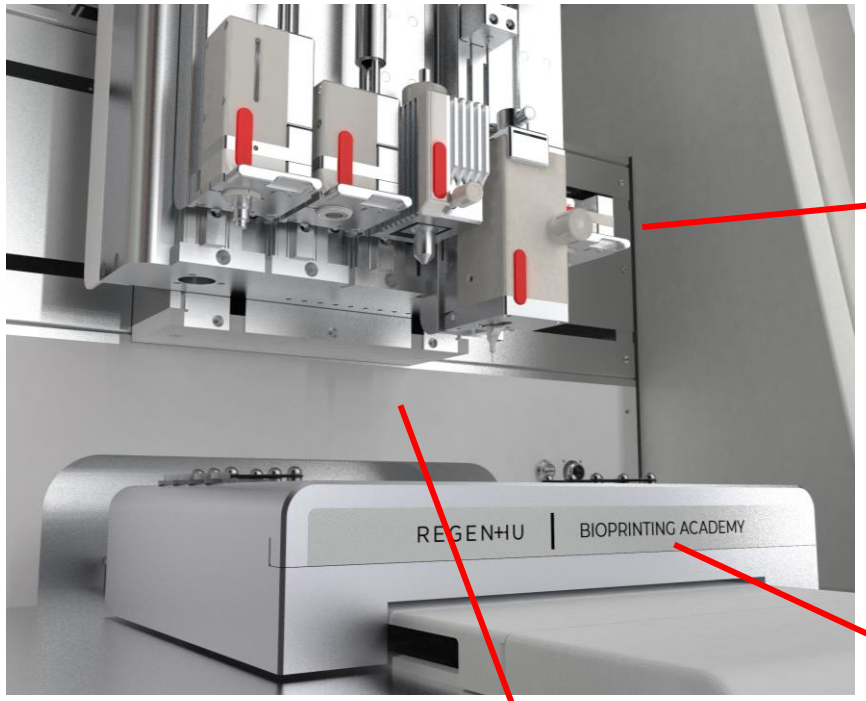
REGEN+HU

PRINT TOOLS AND WORKZONES
2020



CHOOSE YOUR PRINTING TOOLS

- Pneumatic Strand Dispenser
- Pneumatic Drop Dispenser

Cartridge temperature control

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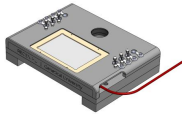
Liquid Temperature Control Unit

- Volumetric Strand Dispenser
  Built in temperature control
- Pneumatic Melt Dispenser
  Built in heating to 250°C

Electro-writing Module

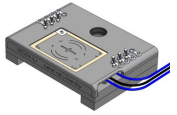
Electro-writing Module

CHOOSE YOUR WORKZONES



Electro-writing & Spinning

Process Vision System



Physiological Temperature

High Temperature

Liquid Temperature Control Unit

Temperature Control Unit required for workzone temperature management

Standard

CHOOSE YOUR ADDITIONAL OPTIONS

Substrate Height Calibration

Light Curing kit

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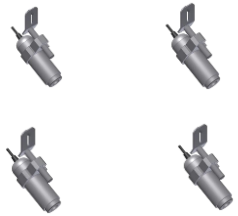

Process Vision Unit

Up to 5 Vision Units can be installed (1 per print tool)

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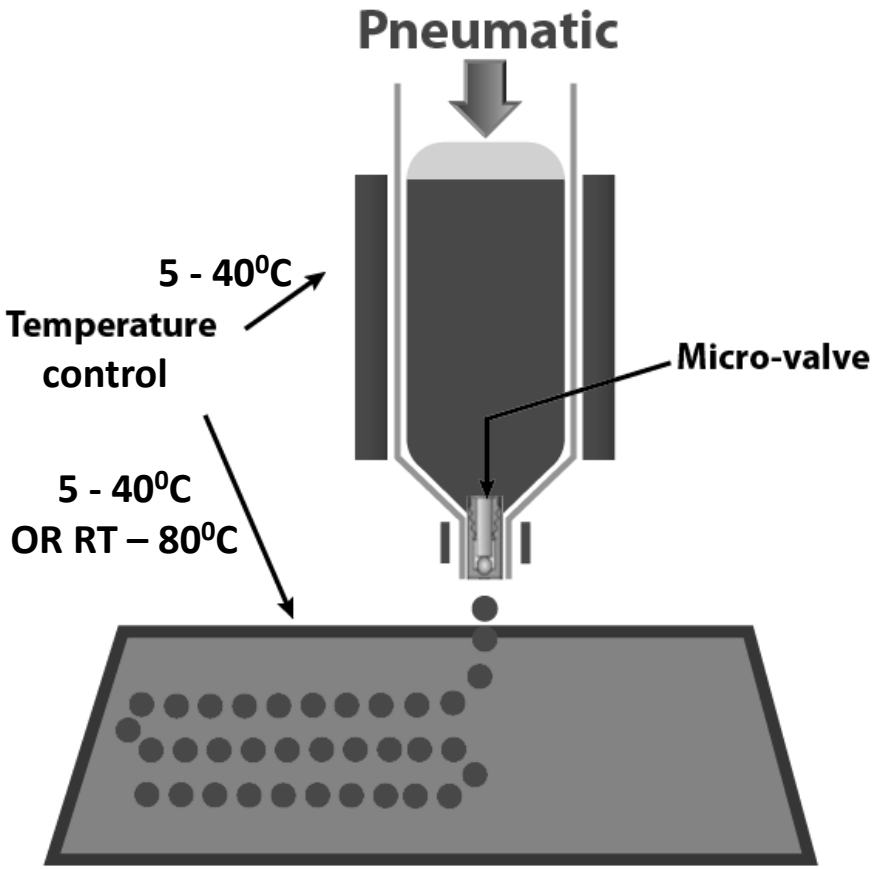
PNEUMATIC DROP DISPENSER



Creates a stream of controlled volume droplets down to 10nl, or deposits continuous fibers. Proven to achieve up to 95% embedded cell survival post printing

Jetting cell-laden droplets with controlled volume (down to 10 nL)

Deposition of strands of low to medium viscosity materials (up to 1000 mPa*s)

TECHNOLOGY

Electromagnetic microvalve-based jetting with pneumatic actuation

Combination with needles for contact dispensing

Built-in nozzle temperature control (RT to 40˚C)

MATERIALS

Cell-laden hydrogel precursors (specific nozzle design to maximize cell viability post-printing)

Culture media, bioactives, pharmaceutical compounds, and liquids.

OPTIONS

Cartridge and nozzle physiological temperature control from 5˚ to 40˚ C.

Cell agitation system inside the cartridge to avoid cell sedimentation.

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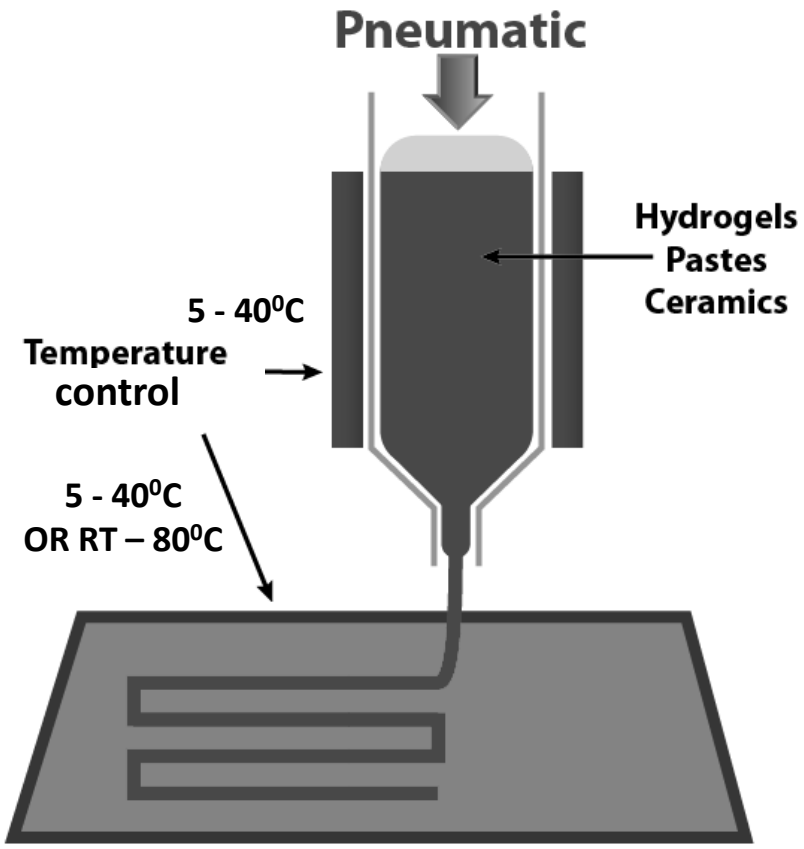
PNEUMATIC STRAND DISPENSER



Controlling printing temperature enables thermosensitive materials to adapt their rheological properties of thermosensitive material, improving printability and embedded cell viability

Print scaffolds or continuous strands of medium to high viscous materials

TECHNOLOGY

Pneumatic dispensing

MATERIALS

Hydrogels, pastes, particle suspensions (ceramic or metallic), resins, silicones and many more.

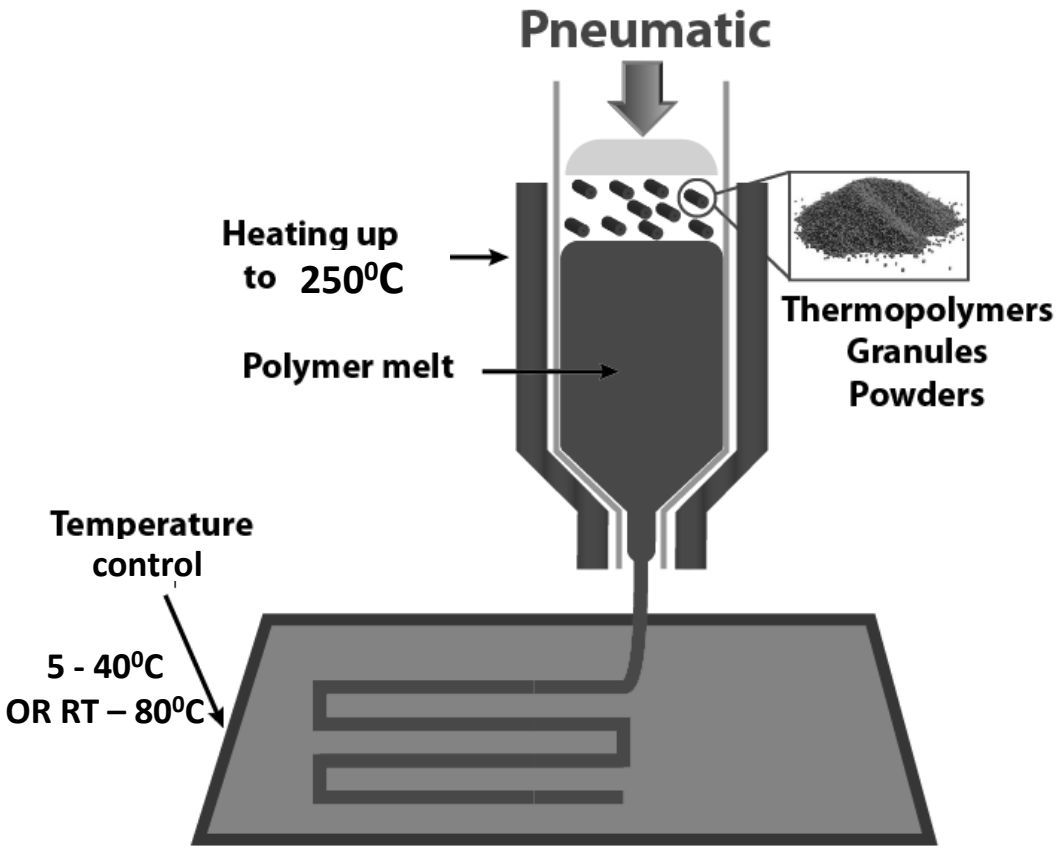
Viscosity range: 50 - 200.000 mPa*s

OPTIONS

Cartridge physiological temperature control from 5 to 40˚C

Cell agitation system inside the cartridge to avoid cell sedimentation.

PNEUMATIC MELT DISPENSER



Process parameters such as temperature, fabrication time and inlet gas feed help avoid thermal degradation

Build 3D structures from thermoplastics with melting point up to 250˚C

Print continuous strands of medium to high viscous materials

Generate micro- and nanofibers by melt electro writing

TECHNOLOGY

Pneumatic, dispensing with built-in heating system (up to 250˚C)

Electrospinning and -writing ready

MATERIAL

Thermoplastics, composite pellets or powders, resins, pastes, hydrogels, viscosity 200,000 mPa*s

OPTIONS

Electrospinning and -writing kit

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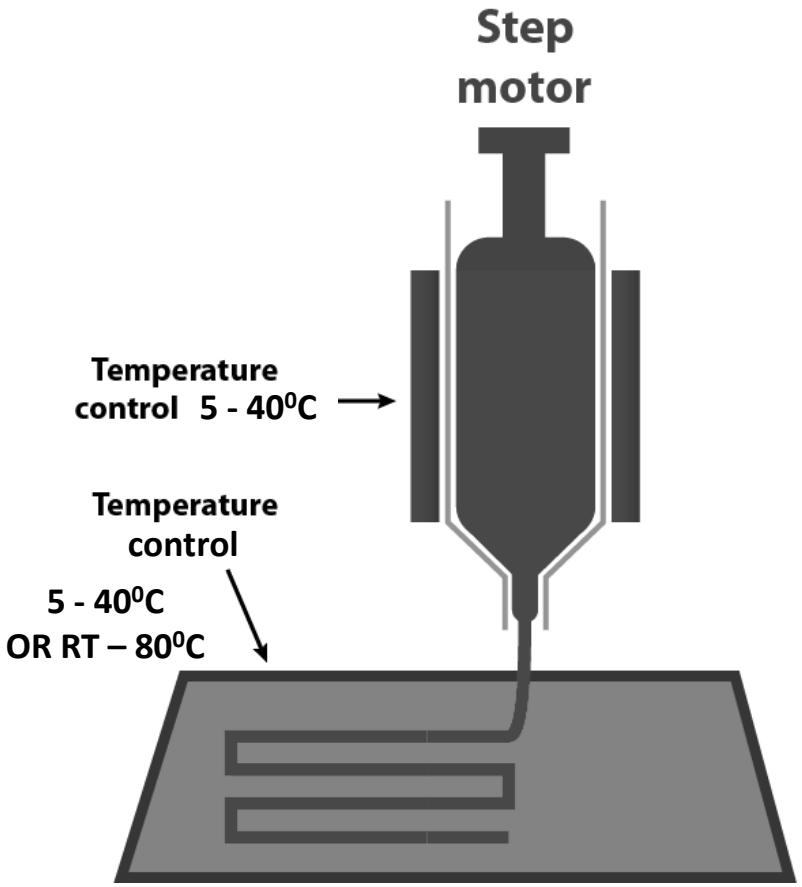
VOLUMETRIC STRAND DISPENSER



Strand deposition improves accuracy and quality of the printing process

Controlled deposition of materials with complex, unpredictable viscosity behavior.

Precise volumetric dispensing with 5 nL accuracy

Generate micro- and nanofibers by solution electrospinning

TECHNOLOGY

High precision syringe-pump based dispensing

Built-in cartridge physiological temperature control (5 to 40˚C) (requires liquid temperature control unit

Electrospinning and -writing ready

MATERIAL

Non-homogeneous fluids, hydrogels, pastes, or particle solutions with viscosities up to 5000 mPa*s

OPTIONS

Electrospinning and -writing kit

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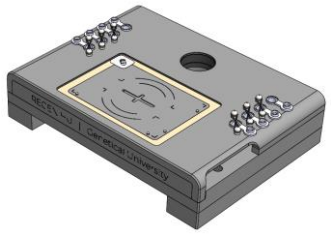
MULTIPLE WORKZONES



STANDARD WORKZONE

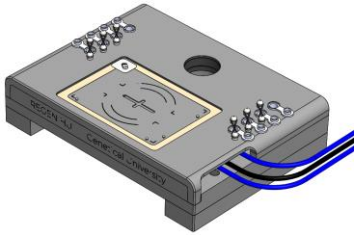
Non-temperature dependent Bioprinting. Deposition of a wide variety of materials using various dispensing technologies such as droplet and strand dispensing.

PHYSIOLOGICAL TEMPERATURE

5˚- 40˚ Celsius

Print thermosensitive hydrogel precursors (Gelatin; Agarose)

Collect cell-laden materials at physiological temperature (37˚C).

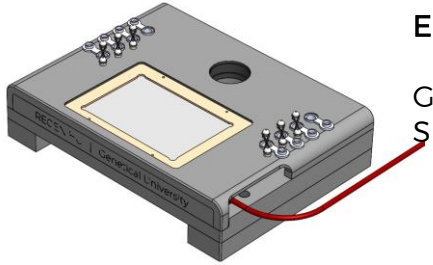


HIGH TEMPERATURE

Print thermosensitive hydrogel precursors (Matrigel; Collagen) from RT to 80˚ Celsuis using an electric heater

Controls the cooling of molten thermoplastics

Collect cell-laden materials at physiological temperature (37˚C)



ELECTRO-SPINNING AND -WRITING KIT

Generate micro- and nano-fibers by Electro-Spinning and –Writing