

**System Description**

- Flat substrate, xyz stage, inkjet deposition system
- Low cost, user-fillable piezo-based inkjet print cartridges
- Built-in drop jetting observation system
- Fiducial camera for substrate alignment and measurement
- Variable jetting resolution and pattern creation PC-controlled with Graphical User Interface (GUI) application software
- Capable of jetting a wide range of fluids
- Heated vacuum platen
- Cartridge cleaning station
- Includes software

**Mechanical System**

- Printable area
  - Substrate < 0.5 mm thickness: 210 mm x 315 mm (8.27 in x 12.4 in)
  - Substrate 0.5 - 25 mm thickness: 210 mm x 260 mm (8.27 in x 10.2 in)
- Repeatability:  $\pm 25 \mu\text{m}$  ( $\pm 0.001$  in)
- Substrate holder
  - Vacuum platen
  - Temperature adjustable; ambient to 60° C (140° F)
- System Footprint: 673 mm x 584 mm x 419 mm (26 in x 23 in x 16 in)
- Weight approximately 50.7 kg (111.8 lbs)
- Power 100-120/200-240 VAC 50/60 Hz 375 W maximum
- Operating range 15-40° C (59-104° F) at 5-80% RH non-condensing
- Altitude up to 2000 m
- Safety and EMC compliance
  - Safety: NRTL Certified to EN 61010-1, UL 61010-1, CSA 22.2 No. 61010-1
  - EMC: EN61326-1 Class A, FCC Part 15 Class A

**Fiducial Camera**

- Allows substrate alignment using reference marks
- Allows positioning a print origin or reference point to match substrate placement
- Provides measurement of features and locations
- Provides inspection and image capture of printed pattern or drops
- Provides cartridge alignment when using multiple cartridges
- Allows matching drop placement to previously patterned substrate

**Cartridge**

- Type: Piezo-driven jetting device with integrated reservoir and heater
- Usable Ink Capacity: Up to 1.5 ml (user-fillable)
- Materials Compatibility: Many water-based, solvent, acidic or basic fluids
- Samba® Cartridge
  - 12 nozzles, single row, 75 DPI
  - 2.4 pL drop volume, 30  $\mu\text{m}$  dot size (results may vary)

**Control PC and Application Software**

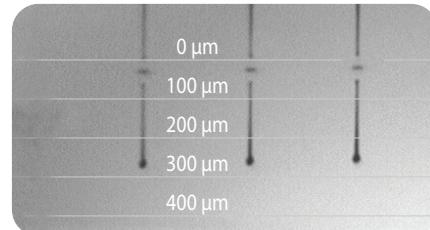
- Pre-loaded patterned templates
- Pattern preview
- Editors: Pattern, piezo drive waveform, cleaning cycle, substrate setting
- Bitmap (1 bit) files accepted

**Replaceable Items**

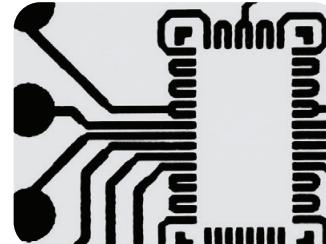
- Print cartridge with one-time user-fillable reservoir
- Cleaning station nozzle blotting pad
- Drop watcher fluid absorbing pad



DMP-2850



Drop Watcher View



Fiducial Camera View



Cartridge





The Dimatix Materials Printer (DMP) is a benchtop materials deposition system designed for micro-precision jetting a variety of functional fluids onto virtually any surface, including plastic, glass, ceramics, and silicon, as well as flexible substrates from membranes, gels, and thin films to paper products. A complete turnkey system, the DMP facilitates developing and testing manufacturing processes and product prototypes. It also can be used for prototyping of products from flexible circuits, RFID tags and displays to DNA arrays, and wearable electronics. By employing inexpensive exchangeable cartridges that researchers can fill with their own fluid materials, the DMP system minimizes waste of expensive fluid materials, thereby eliminating the cost and complexity associated with traditional product development and prototyping.

The Dimatix Materials Cartridge is a cartridge-based inkjet printhead used with the DMP. Based on FUJIFILM Dimatix's proprietary Silicon MEMS technology, the Dimatix Materials Cartridge is designed for high-resolution, non-contact jetting of functional fluids in a broad range of applications. The cartridge can deposit features to fabricate products such as organic thin-film transistors (TFTs) and printed circuits. In biotechnology, the Dimatix Materials Cartridge allows researchers to closely pack large numbers of elements in DNA arrays, to permit more accurate and efficient analyses.

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