

Inkjet Printing Guidelines

Graphene dispersion with ethyl cellulose in cyclohexanone and terpineol, inkjet printable

Standard printing methods: Commonly used with 1-mL polypropylene syringes as the ink reservoir, with a custom attachment to connect the purge to the top of the syringe. In this setup, the end is cut off the syringe so that it fits into the Dimatix cartridge (DMC-11610). This setup allows the cartridge to be reused and cleaned out between printing runs, and also to briefly sonicate the ink prior to printing each time.

Standard jetting parameters:

A good starting point is the Dimatix Model Fluid 2 Waveform

Details:

	Level	Slew Rate	Duration (us)
Segment 1:	0%	0.65	3.584
Segment 2:	100%	0.93	3.712
Segment 3:	67%	0.60	3.392
Segment 4:	40%	0.80	0.832

Nonjetting waveform:

	Level	Slew Rate	Duration (us)
Segment 1:	53%	1.00	3.712
Segment 2:	40%	1.00	6.976
Segment 3:	40%	1.00	0.832

- Typical voltage of 12-24 V
- Jetting typically done at 5 kHz, with 5 kHz tickle frequency enabled
- Temperature: 30 °C for cartridge and platen
- Meniscus vacuum: 5.0 inches water
- Print height: 0.5 mm

Pattern parameters:

- A leader bar is recommended
- Commonly used with ~30 micron drop spacing, but have had success with printing from 20-40 micron drop spacing, depending on the substrate and desired properties (film thickness, resolution, etc)
- Cleaning cycles: Spit-purge-spit is typical; once the jets are working, 200 ms spit-200 ms purge-200 ms spit prior to printing should be okay. It may require a longer purge to get fluid to the nozzle plate initially, depending on the state of the cartridge

Cleaning: Ethanol works well for cleaning. This is effective for both wet and dry films, and can be used to flush the cartridge. IPA and acetone can also work.