

Jetting Emerson & Cuming Underfill Materials

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The goal of this application was to determine the settings to jet several different underfill materials formulated by Emerson & Cuming, using the DispenseJet® DJ-9000 jet on the Spectrum™ S-820 and Axiom™ X-1020 dispensing systems.

The table below lists the specific fluid product numbers tested along with hardware settings used for each with the DJ-9000.

Settings

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Product#	E-1216	XE-1218	XE-1219	E-1161	E-1220	XE-1219SHC-F
Platform	Spectrum S-820	Spectrum S-820	Spectrum S-820	Axiom X-1020	Axiom X-1020	Axiom X-1020
Pump/Valve	DJ-9000	DJ-9000	DJ-9000	DJ-9000	DJ-9000	DJ-9000
Fluid Type	Underfill	Underfill	Underfill	Underfill	Underfill	Underfill
* Needle Size	3.20 mm (0.128 in)	3.20 mm (0.128 in)	3.20 mm (0.128 in)	3.20 mm (0.128 in)	3.20 mm (0.128 in)	3.20 mm (0.128 in)
* Seat Size	0.38 mm (0.015 in)	0.38 mm (0.015 in)	0.38 mm (0.015 in)	0.38 mm (0.015 in)	0.38 mm (0.015 in)	0.38 mm (0.015 in)
* Nozzle Size	0.125 mm (0.005 in)	0.125 mm (0.005 in)	0.125 mm (0.005 in)	0.125 mm (0.005 in)	0.125 mm (0.005 in)	0.125 mm (0.005 in)
Micrometer Setting	10 Increments	10 Increments	5 Increments**	10 Increments	5 Increments**	10 Increments
Valve on/off time	4ms/4ms	4ms/4ms	4ms/4ms	4ms/4ms	4ms/4ms	4ms/4ms
Valve Pressure	586 kPa (85psi)	586 kPa (85psi)	586 kPa (85psi)	586 kPa (85psi)	586 kPa (85psi)	586 kPa (85psi)
Fluid Pressure	34 kPa (5psi)	34 kPa (5psi)	10 kPa ** (1.5 psi)**	28 kPa (4 psi)	10 kPa ** (1.5 psi)**	28 kPa (4 psi)
Nozzle Temp	55	50	No Heat	50	No Heat	50
Dispense Height	0.2 mm (0.008 in.)	0.2 mm (0.008 in.)	0.15 mm (0.006 in.)	0.15 mm (0.006 in.)	0.15 mm (0.006 in.)	0.15 mm (0.006 in.)
Substrate Temp	Refer to TDS	Refer to TDS	Refer to TDS	Refer to TDS	Refer to TDS	Refer to TDS
Flow Rate	0.023 mg/dot	0.023 mg/dot	0.033 mg/dot	0.026 mg/dot	0.027 mg/dot	0.025 mg/dot

*** NOTE: DJ-9000 Hardware Part Numbers:**
Needle: Asymtek P/N 7200580-18
Seat: Asymtek P/N 210734-3) (Carbide)
Nozzle: Asymtek P/N 210753-5

**** NOTE: These settings may not be the best for high-volume production.**

Results Summary

We were successful in jetting all materials listed above with the listed hardware and settings. The result of this work provides a baseline set of hardware and settings that can be used as a starting point when preparing for a specific application using these materials.

For these materials, the same jet needle, seat, and nozzle configurations were used. These hardware configurations could change depending on the specifications of a different application with same materials.

As with most DispenseJet® applications, the dispense height is flexible and could differ without impacting dispense quality and repeatability.

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This hotsheet documents the application at the time of publication. Please contact us at info@asymtek.com for any further updates or improvements.