

Asymtek Applications Hot sheet

Jetting Underfill on Flex into a Small Gap, 0.4 x 0.5 mm (Henkel Loctite 3536)

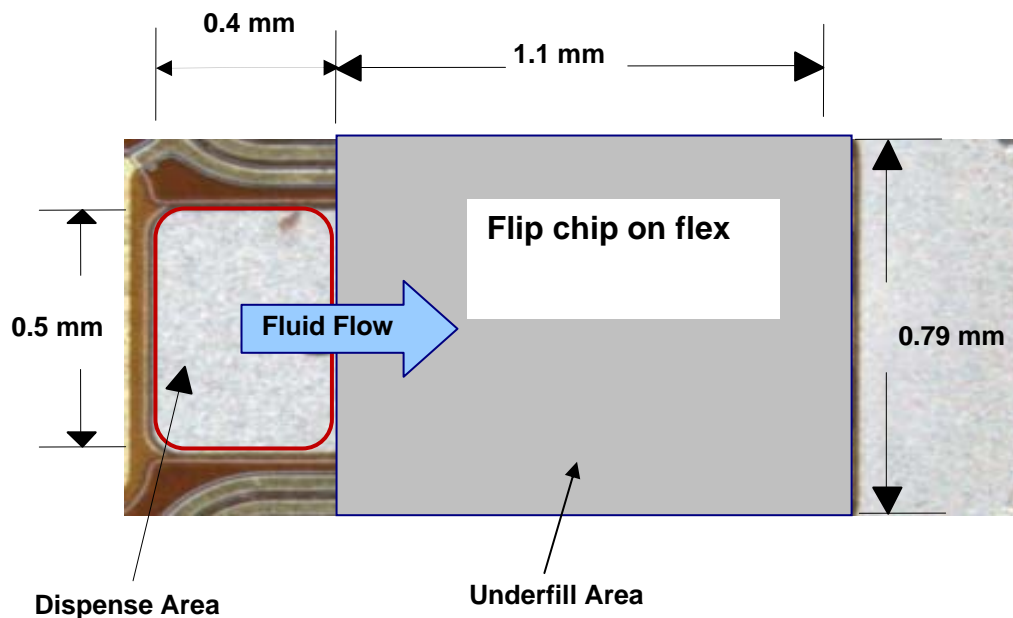
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The goal of this application was to determine the optimal hardware and jet settings for underfilling a flip chip on flex in a disk drive read/write head. The fluid tested was Henkel Loctite 3536 underfill, which is a CSP/BGA underfill designed to cure quickly at low temperature. The dispense area was very narrow: 0.4 x 0.5 mm (0.015 x 0.020 in.). The figure below illustrates the dispense area and underfill area.

Settings Summary

Platform	Axiom [®] X-1000 in Precision mode
Jet/Pump/Valve	DispenseJet [®] DJ-9000 with static seal
Fluid Type	Underfill
Fluid Manufacturer & Product number	Henkel Loctite 3536
Fluid Details	Viscosity: 1,848 mPa-s Pot life: 14 days
Hardware Configuration	Needle 2.4 mm (0.096 in.) (P/N 7200580-16) Seat 0.20 mm (0.008 in.), Carbide (P/N 210734-1) Nozzle 0.08 mm (0.003 in.) (P/N 210753-3)
Fluid Pressure	68.9 kPa (10 psi)
Valve Temperature	30 °C
Dispense Height	0.75 mm – 1 mm
Substrate Temp	70 °C
Applications Development	Developed by Linh Rolland

Figure: Dispense and Underfill Area



Results Summary

The jet's static seal was tested for 9 hours, with flow rate 0.0083 mg to 0.009 mg/dot and dot diameters of approximately 0.55 mm on the stainless steel substrate. The static seal was being tested because the PEEK seal leaked and had to be replaced every 8 hours.

Prior to testing, the jet was primed with vacuum. For the best results, the substrate was preheated (up to 70 °C) to allow fast capillary flow.

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

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