

Dam and Fill Dispensing for Medical

Case Study

One of our customers in the medical industry requested dam and fill application testing on a Kapton substrate. The material needed to be non-conductive for dispensing around electrical components, acting as structural support. Ultimately the product will be folded, therefore the footprint had to be small.

Recommended Dam and Fill Dispensing Process:

A precision dispensing system, the MAX Series, was utilized for this testing. The MAX automated dispense system was equipped with standard features including automatic vision alignment, contact surface sensor (laser is an alternative), automatic nozzle calibration, nozzle cleaning and UV curing light.

The application specialist recommended time pressure with real time process control, FPC (Fluid Pressure Control) for the dam dispensing. FPC monitors and adjusts the pressure of fluid entering the pump, regardless of fluid reservoir level. Real time control in milliseconds compensates for variations in fluid volume as syringe levels change.

A continuous volumetric dispense pump (PCD3H) was chosen for the fill process. This unique sealed system design eliminates drips while providing exceptional volumetric control throughout the working life of a fluid. A PCD pump is a continuously volumetric dispensing pump based on the Progressive Cavity principle. PCD technology is an innovation in dispensing for a wide range of fluids, from low viscosity coatings to high viscosity greases.

Dam and Fill Dispense Parameters:

The information table below displays the key process parameters utilized for capability testing.

Dam Pump:	Time Pressure with FPC	Fill Pump:	Volumetric PCD3H
Needle:	32G S Type	Needle:	25G S Type
Run Pressure:	16 psi	Micro Valve Speed:	5000 steps/s
Standby Pressure:	0 psi	Valve Reverse:	450 steps
Hold Pressure:	0 psi	Syringe Pressure:	2.5 psi
Dispense Velocity:	0.35 in/s	Dispense Velocity:	0.125 in/s
Valve Prime:	0.5 s	Valve Prime:	0.1 s
Valve Off:	0.2 in	Valve Off:	0.01 in

Conclusions: Dam and Fill Dispensing for Medical

The results were consistent and achieved the desired cycle time.

Due to confidentiality, we are unable to publish pictures of the project.

Final Dam and Fill Dispensing Equipment Recommendation:

Dispense System	:	MAX Series System with auto vision, contact surface sensor, automatic nozzle calibration, automatic nozzle cleaning and UV curing
Dispense Pump	:	Time Pressure with FPC, Volumetric PCD3H
Material	:	Kapton
Needle Size and Type	:	32G S Type & 25G S Type

GPD Global offers [dispensing system](#) customization and [in-house application evaluations](#). Call 1.970.245.0408 or email request@gpd-global.com .

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