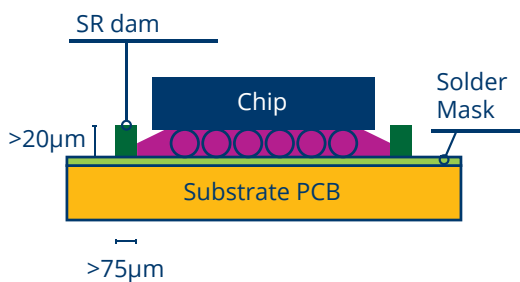


Orbotech Magna™

Additive Printing Solution for IC Packaging

More Functionality, Less Space

The growing demand for micro-electronics has created a need for cost effective and accurately placed dams that create a barrier around function-specific dies to prevent leakage beyond the die area. Inkjet printing provides an alternative to costly traditional solder mask patterning or ink dispensers while saving package space.



Orbotech Magna for Dams

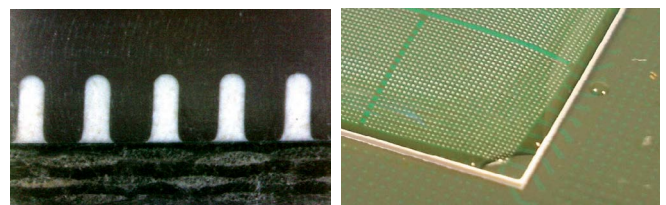
KLA's additive printing technologies allow manufacturers to save space and costs by depositing a protective barrier that seals off the surrounding die area. By creating a dam using Orbotech Magna's inkjet printing, the results are more accurate and less costly than the conventional process. Orbotech Magna also saves valuable package space and is suitable for flip-chip chip scale package (FCCSP), ball grid array (BGA) and advanced chip-in-package (CIP) modules.

- Advanced inkjet printing for dams
- Enables the deposition of tall dams with a high aspect ratio up to 0.5mm height and $75\mu\text{m}$ width
- Provides excellent adhesion on different substrates
- Supports strip, panel, JEDEC tray, wafer
- High throughput, low total cost of ownership (TCO)
- High-accuracy deposition enables the reduction of dam keep-off zone (KOZ)

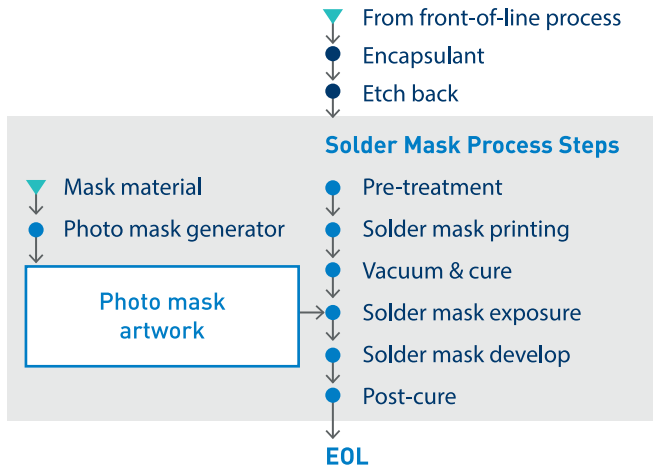


Orbotech Magna for Direct Printing of Insulation Layers

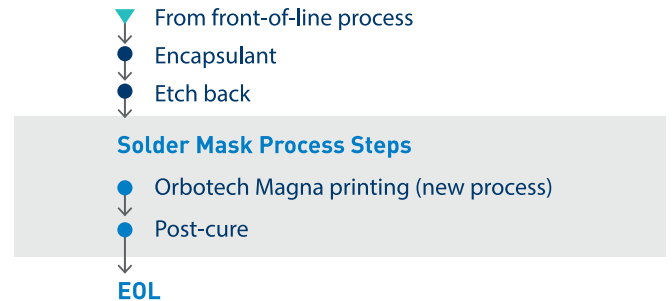
- No material waste
- Removes expensive lithography steps – simplifies the process
- No mask necessary
- 40% total cost saving
- Shortens time to market (TTM) for new product introductions (NPI)
- Routable quad-flat no-lead (QFN) and chip-scale package (CSP)



Conventional Process - Long & Costly



Orbotech Magna - Fast, Cost-Effective & Eco-Friendly



Specifications

Maximum Printing Area	12" x 16" (304.8mm x 406.4mm)
Minimum/Maximum Strip Thickness	4-256mil (0.1mm - 6.5mm)
Minimum/Maximum Resolution	600 - 2400 dpi
Minimum Line	2.9mil (75µm)
Registration Accuracy (FTG)	±1.4mil (±35µm)
Maximum Distance PH/Substrate	Up to 60mil (1.5 mm)
Alignment	User selectable registration points; Partial scaling
Strip/Panel Attachment	Standard: Strips handling vacuum + clamps Optional: Customizations for carriers, JEDEC, panels
Software	Software RIP – integration to CAM, Gerber RS-274X input, push-to-print, multi-language
Inkjet Fluids	Multiple fluids from leading material suppliers
Dimensions W x D x H*	39.4" X 45.3" X 88.2" (1000mm x 1150mm x 2240mm)
Weight	1984lbs (900kg)
Automation	Automation-ready with 3rd party integration

* Height including system status tower light

KLA SUPPORT

Maintaining system productivity is an integral part of KLA's yield optimization solution. Efforts in this area include system maintenance, global supply chain management, cost reduction and obsolescence mitigation, system relocation, performance and productivity enhancements, and certified tool resale.

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