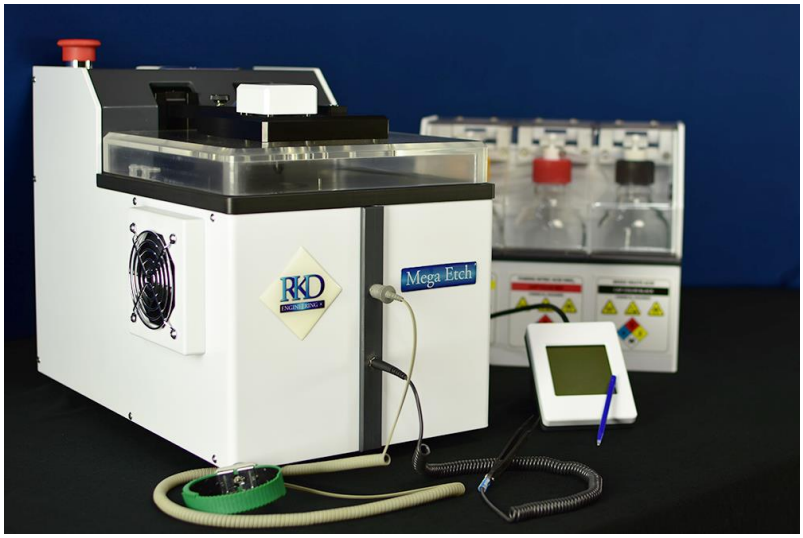
Mega Etch 7300

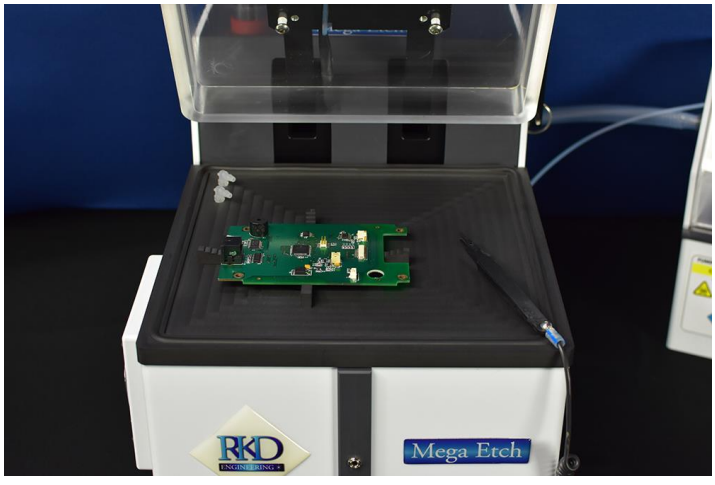
Board Level Acid Decapsulation System with ESD Control

Board Level Acid Decapsulation System - with ESD



The **Mega Etch 7300** was designed with the PCB manufacturer in mind. The system provides the ability to open integrated circuit packages which are still attached to the original printed circuit board, allowing the failure analysis engineer to power the board even after an operation has been performed. This decapsulator rapidly opens delicate packages by delivering precise, micro-aliquots of nitric, sulfuric, or mixed acids to the sample package.

The **Mega Etch** operates at temperatures up to 250° C enabling operational versatility with any combination of acids. It includes the same functionality of all other RKD Engineering decapsulator models with additional features. This model improves upon the design of the Elite Etch series with an expanded decapsulation chamber and ESD mitigation. The expanded space surrounding the etch head allows a complete PCB to be prepared for failure analysis by using a gasket stack up with correct definitions cut. Maximum board size is 152.5 x 152.5 mm (6 x 6 in).



The **Mega Etch** features an acid controller etch head which is machined from premium grade silicon carbide for unsurpassed acid resistance. The etch head is designed to reduce the fuming of any residual acids left on the etch head at the end of the process, both for operator safety and convenient acid disposal.

The device hold-down assembly (ram nose) is a pneumatically activated push rod. The ram nose is normally retracted and extends when

the safety cover is fully closed. The ram nose secures the sample package and a definition gasket to the etch head, thus eliminating movement of either the package or its fixturing. The ram nose is connected to a high impedance resistor network to further aid in ESD mitigation during decapsulation. The use of an electrically isolated, yet dissipative ram nose assembly ensures that the process of decapsulation never results in ESD problems within the part being opened.

RKD Engineering incorporates double containment for all fluid couplings between the bottle container and the decapsulator. The bottle box assembly and the etcher unit both contain fluid sensors to alert the operator in the event of an acid leak from any of the bottles or internal fittings. The bottle box incorporates a universal pivoting interconnect which allows simple bottle exchange with minimal exposure to residual acid.

To mitigate ESD problems when handling decapsulated packages on a board, including removal of the board from the decapsulator, rinsing, drying etc. The Mega Etch system is equipped with two ESD panel mounted sockets and circuitry for the attachment of ESD tweezers and a wrist strap. The unit however may be operated without appropriate grounding.

Specifications

Etcher Unit	Height: 431 mm (17 in)
	Width: 330 mm (13 in)
	Depth: 483 mm (19 in)
Bottle Assembly	Height: 254 mm (10 in)
	Width: 280 mm (11 in)
	Depth: 127 mm (5 in)
Weight	Approx. 18 kg (40 lb)
Power Source	90 to 250 VAC, 50 to 60 Hz (4 amp)
Acid temp. range	10° to 250° C
Acid temp. set point	1° C ± 1% of setting
Etch cavity (up to)	22 mm x 22 mm (30 mm diagonal) for any packages mounted on or off a PCB.
	Maximum board size is 152.5 x 152.5 mm (6 x 6 in)
Choice of Acids	fuming nitric acids, mixed fuming nitric and sulfuric acids, or fuming/concentrated sulfuric acid
Acid Mix Ratios	(nitric to sulfuric ratios) 9:1, 6:1, 5:1, 4:1, 7:2, 3:1, 5:2, 2:1, 3:2, 1:1, 1:2, 1:3, 1:4, 1:5
Post Etch Rinse Options	sulfuric acids, fuming nitric acids, mixed acids, or no rinse
Etch Times	1 to 2,400 seconds in 1 second increments (1 seconds to 40 minutes) dynamic (real time) adjustments of etch time
Etch Modalities	Pulse Etch, Reciprocal Etch Acid Pulse (REAP)
Temperature Ranges	20° to 90° C (nitric acid), 20° to 250° C (sulfuric acid), 10° to 100° C (mixed acids)
Etchant Volume Selection	1 to 8 ml per minute - for all acids & acid mixes at a temperature above 100° C
Operator Program Storage	100 programs stored to nonvolatile memory
Ambient Temperature Range	15° to 26° C
Warranty	most comprehensive and inclusive warranty in industry (ask for full details)