

# Chemraz® E-Band Solutions Extend the Service Life of Electrostatic Chucks in Etch and Deposition Chambers

## Background

A Greene Tweed customer was replacing their electrostatic chucks (ESCs) after approximately 4,500 radio frequency (RF) hours of use. The ESC would begin to fail as a result of damage caused by aggressive process and cleaning chemistries.

## The Challenge

### How do ESCs become damaged and require replacement?

Plasma reaches this part (outside diameter) of the ESC during water processing and during in situ chamber cleans.



Plasma erodes away the epoxy located at this interface and reveals a channel and circuitry. Damage occurs.



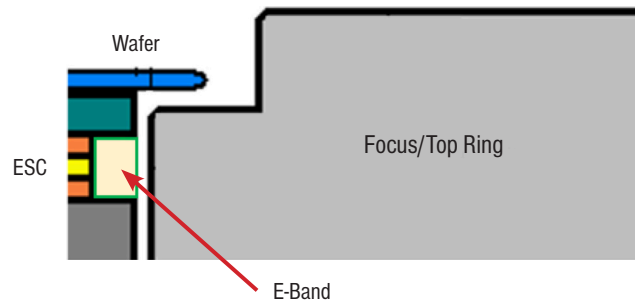
Eventually, arcing and particles occur from the damage to the ESC, and the ESC would have to be replaced.

The cost of a new ESC can be \$25K to \$80K, or more. Replacing an ESC requires costly down time.

To eliminate ESC replacement and its downtime costs, the customer needed to eliminate damage to their ESCs.

## The Greene Tweed Solution

Instead of replacing their ESC, the customer chose the Greene Tweed E-Band solution with Chemraz® XPE. The Chemraz® E-Band solution prevented particle proliferation during the process and extended ESC life, which significantly lowered RF downtime and saved more than \$35K in parts replacement alone.



### Don't replace your ESC – use a Chemraz® E-Band Solution

Using Chemraz® E-Band as a “sacrificial” seal protects the interface at the OD of the ESC.

Custom designs and specially designed installation tools and procedures enable easy replacement and a precise fit in the channel/interface.

## The Results

- The customer's ESC required replacement after 4,500 RF hours; use of Greene Tweed's Chemraz® E-Band solution offered 10 times greater RF life (up to 45,000 hours).
- The Chemraz® E-Band solution eliminated nine out of ten downtime cycles.
- The number of ESC replacements was significantly reduced with the Chemraz® E-Band solution.