

App. Note

Replacement Components for Axcelis GSD ELS2 Cathode Upgrade

- Bolt on Compatible
- Decreased Coating Related Failures
- Improved Filament Alignment
- Increased Filament and Cathode Life
- Reduced COO

The ELS2 cathode assembly is a bolt on hardware & electrical upgrade for Axcelis GSD implanters and is configurable for both H.E. and E², ELS type ion sources. The design takes advantage of four incremental improvements to source life and assembly.

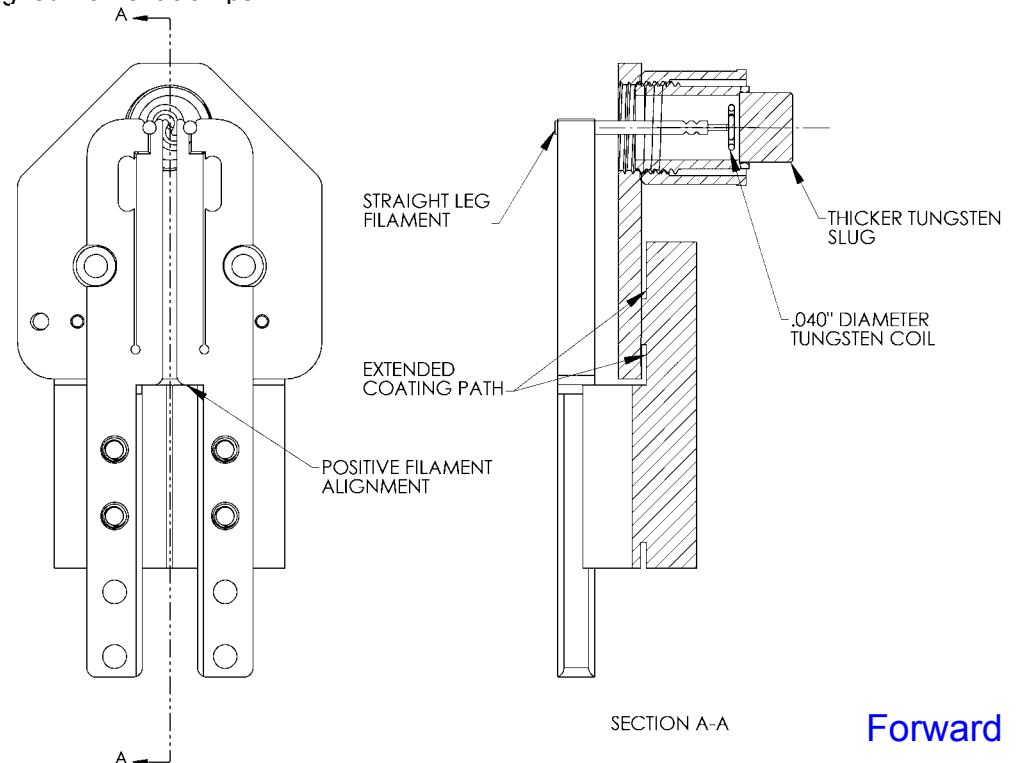
1. The filament coil diameter has been increased from .034" to .040". Because of this increase in coil cross-section, a 9-volt Zener diode replacement (#D45 on D.I. PCB Assembly 1522620) is required to handle the increased filament current.
2. A thicker tungsten slug (cathode button) is employed to reduce cathode burn thru and extend cathode life.
3. Reliable, self-clamping, filament clamps are used in conjunction with a straight leg filament to provide consistent assembly and improve filament positioning.
4. A redesigned cathode insulator extends the coating path length and provides positive, consistent, alignment for the newly designed filament clamps.

Due to the larger wire diameter, subtle variations to standard source operating parameters are expected (e.g. filament current).

The ELS2 upgrade is compatible with all GSD, ELS style, arc chamber, top plate, and repeller configurations.

The ELS cathode support plate and cathode repeller are compatible with the ELS2 design, thus allowing users to consume inventory before making a switch to the ELS2 design.

Complete hardware upgrades are available from Electro-Graph. However, the required electrical upgrade is available only from Axcelis (kit cross ref.# 1053680).



Assembly

1.05.130 GSD ELS2 Components

Application Note

2.05.116 Axcelis GSD Cathodes