



Application Note: Improved Electron Beam Sources

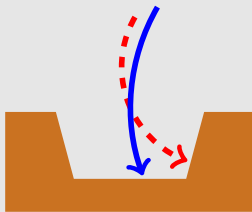
Continual improvement of the design and construction of Telemark's electron beam sources allows Telemark to provide best-in-class performance with easy maintenance and reliability.



Improved Beam Shape

In recent years Telemark has greatly advanced the magnetic design of their sources using a combination of advanced mathematical modeling and empirical research. By iteratively modifying our source magnetics, Telemark has achieved a tight beam spot (typically less than 6 mm in diameter for most models) across the pocket surface. Shown right is the modeled beam spot for the Model 274 25cc pocket.

Reduced Secondary Emission Production



Recent improvements to the magnetic design of Telemark's production sources brings the electron beam to the pocket perpendicular to the evaporant, greatly reducing secondary electron production. Additionally, by reducing the curl of the beam in the pocket, material utilization is improved as well. Combined with Telemark's new Programmable Sweep, 20%-30% more sublimating or semi-melting material can be evaporated from a pocket - allowing for thicker coating layers and better material utilization.

Arc Suppression Emitter

Telemark's recently introduced Arc Suppression Emitter, now standard on most larger Telemark production series (26x/27x/29x), provides an optimized emitter and filament geometry for improved emitter resilience against arcing during operation, even in high pressure or oxygen-rich environments.

Contact Telemark or your local Telemark sales representative to discuss how to easily bring these improvements into your production evaporation process.

