



Evap Mini E-beam Evaporators

Compact source

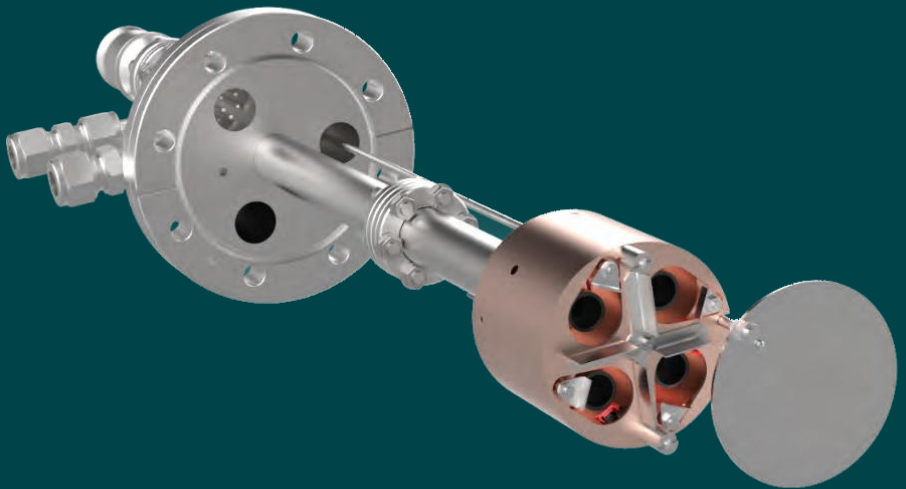
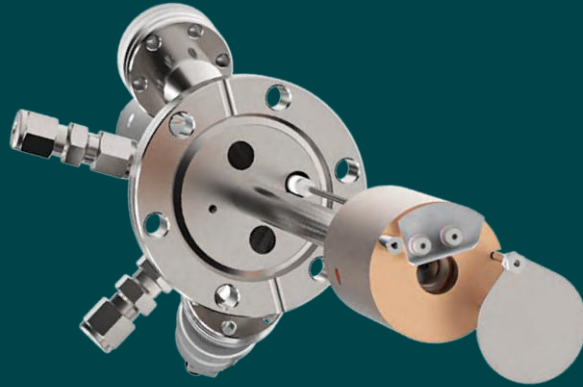
Efficient material usage

Low thermal load

Combined 4 pocket
power supply

UHV compatible

Ideal for lift off process



Co-evaporation of high
melting point materials on
heat sensitive substrates.

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Compact mini e-beam evaporator series

The 250W power supply provides control for up to 4 pockets in one single unit with three control modes.

Power control: The user selects the power set point and the supply automatically adjusts the filament current to achieve the desired power.

Filament current control: The user regulates the filament current directly.

Flux control: The user regulates the flux current.



Fig. 1. Evap power supply with 4 channels.

Specifications

Evaporator Options	Evap-1	Evap-4C	Evap-4
Mounting flange	NW40CF (2.75" O.D.)	NW40CF (2.75" O.D.)	NW63CF (4.5" O.D.)
UHV compatible	Bakeable to 150°C standard; 250°C bakeable option available		
In-vacuum length	300mm - special length requirements can be discussed		
In-vacuum diameter	32mm	34mm	57mm
Co-evaporation	No	Yes	Yes
Number of pockets	1	4	4
Available crucibles	210, 390, 1000mm ³	210, 390mm ³	210, 390, 1000mm ³
Crucible materials	Mo, VC, W	Mo, VC, W	Mo, VC, W
Crucible liners	PBN, Al ₂ O ₃	PBN, Al ₂ O ₃	PBN, Al ₂ O ₃
Rod dimensions	Φ 4mm, 28mm long	Φ 2mm, 28mm long	Φ 4mm, 28mm long
Flux monitoring	Yes	Yes	Yes
Coolant flow	Minimum 1.0 l/min		
Shutter	Manual or optional pneumatic actuator		

The **Evap-4** and **Evap-4c** are highly efficient, compact 4 pocket mini e-beam evaporators featuring co-evaporation capability. Mini e-beam evaporators allow the deposition of common process metals such as Gold, Silver and Chrome with exceptional control and minimal heat load on substrate and surroundings when compared with a thermal boat source. The single pocket (**Evap-1**) is ideal for higher capacity evaporations where one metal is required.

This technique uses a beam of electrons to either evaporate a material directly when in rod form or indirectly by heating a biased crucible. The partially collimated beam evaporated from a crucible provides much more efficient material usage of expensive materials when compared with conventional e-beam hearth evaporators or thermal boat sources.

The actively cooled copper head results in minimal outgassing during operation and the enclosed pockets absorb much of the radiated heat so that there is minimal heat load on the substrate. Ideal for depositing accurate thin film coatings on temperature sensitive substrates. The Evap is equipped with flux plates, which measure the ion flux emitted from the source material and offer an independent measure of the deposition rate.

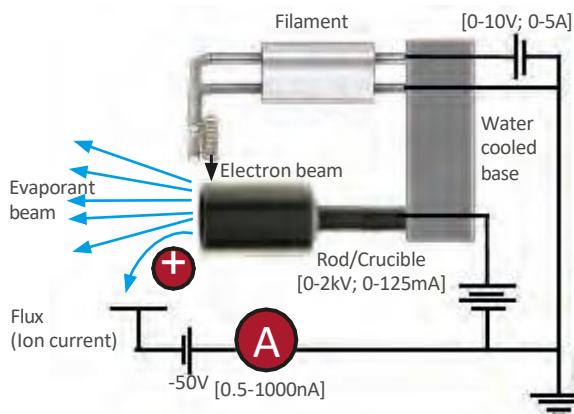


Fig. 2. Principle of operation of a mini e-beam evaporator.

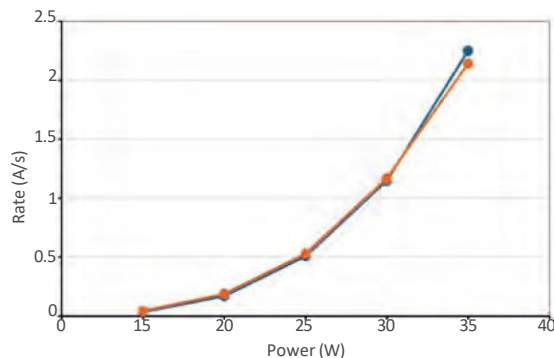


Fig. 3. Consecutive silver evaporations from EVAP-4 at source to substrate distance of 250mm.

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