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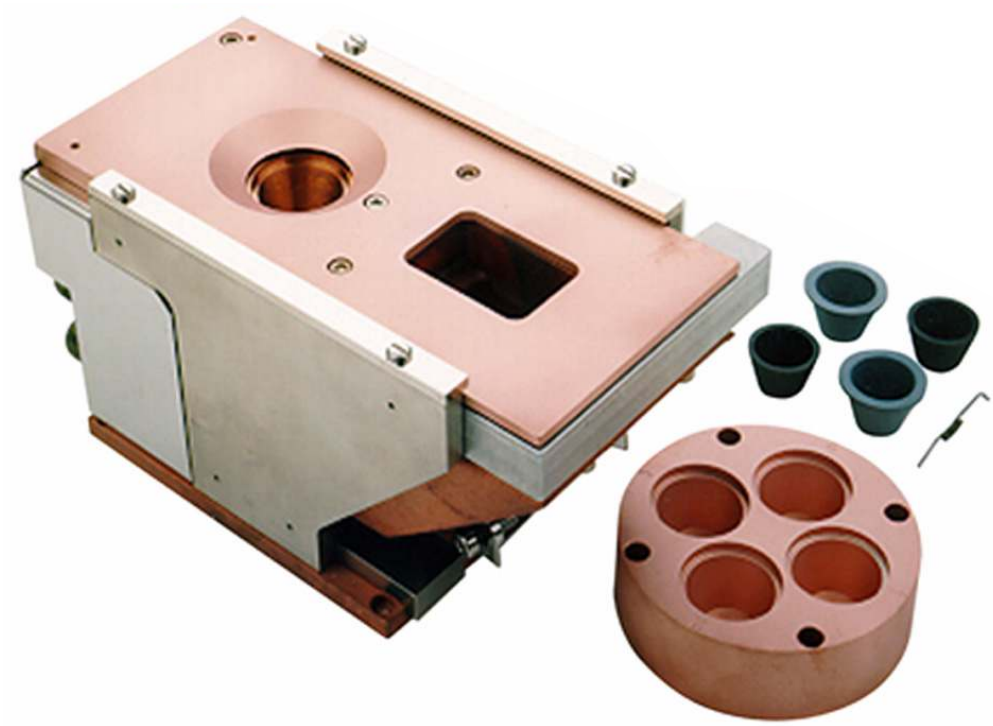
A VACUUM SCIENCE AND TECHNOLOGY COMPANY

VACUUM COATING COMPONENTS

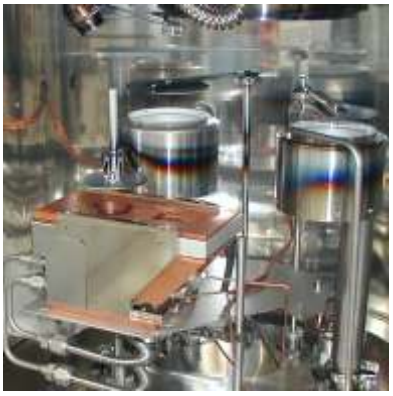
ELECTRON BEAM SOURCES

Electron beam sources provide economical and efficient usage of evaporation, enable easy changeover between evaporants and achieve high deposition rates. The high degree of control possible with electron beam sources enable rates.

Contain materials (for example titanium, nickel, cobalt, semi-refractory metal oxides and rare earth oxides) are difficult to evaporate with resistance heated sources, but can be readily deposited when heated by electron bombardment.



HHV manufactures a range of compact electron beam sources for the thin film researcher. All are supplied in modular form with all the parts to enable easy installation into coating systems.



EB3 MULTI HEARTH ELECTRON BEAM SOURCE

The EB3 series of sources provides all the features normally only found in much larger production systems in a compact size. The small footprint of the EB3 maximizes space In the vacuum chamber for other process hardware and also enables the source to be positioned where required for optimum coating uniformity.

FEATURES & BENEFITS

Four 4 cm^3 crucibles, with options 270° electron beam deflection minimizes filament contamination and prolongs filament life Removable water-cooled crucibles for easy cleaning and economical replacement 'Plug-in' emitter assembly for convenient filament maintenance Integral X-Y beam sweep coils enable optimum beam control during evaporation Inactive crucibles shielded to prevent cross-contamination of evaporation materials.

EB3 KW ELECTRON BEAM POWER SUPPLY

The EB3 is a rugged 3kv constant voltage power supply comprising a free-standing power module and a console mounting control unit.

- 5 kV, 600 mA output with twin tetrode power tubes for ± 1% voltage regulation & instantaneous arc recovery
- Power module and gun control modules can be mounted in 19 inch electrical cabinets
- Comprehensive interlock system to ensure operator safety and prevent incorrect operation
- Compatible with most quartz crystal deposition controllers enabling fuly automatic, constant rate deposition

EB3 3 KW power supply

X-Y BEAM SWEEP UNIT

This unit provides the ability to scan the electron beam in the lateral and longitudinal directions with full control of beam start position, sweep amplitude and oscillation frequency. The various sweep patterns that can be generated enable rapid and uniform heating of large evaporant volumes and materials with poor thermal conductivity.

Gun controls, X-Y sweep controller & turret indexer controls mounted in the 19 inch rack adaptor

INSTALLATION ACCESSORIES

Modular kits are available to enable the EB3 electron beam source to be easily installed in HHV coating systems. Kits include leadthroughs, turret drive mechanisms, mounting hardware and all necessary pipes, cables and mechanical parts.

TECHNICAL DATA

Maximum power rating	3 kVA
HT voltage	4.5 - 5.5 kv
Filament supply	6 V at 20 A
Maximum filament current	600 mA
Magnet (permanent)	Alnico
Crucible	4 cm^3 (X4)
Beam spot size	4 mm
Minimum cooling water	3 l min^{-1} at 20^0 c
Minimum Vacuum	4.9 kg

ORDERING INFORMATION

Product description	**Order No.**
EB3 Multihearth electron beam source (4 X 4 cm^3)	E09072000
EB3 3kw power supply	
380/415/440 V, 50 Hz	E09060000
220 V, 60 Hz	E09061000
Spares	**Order No.**
Spares filament EB3	E03615005
Emitter flanged insulating bush	E00100234
Emitter Small insulator	E09037019
Accessories	**Order No.**
EB3 vacuum feedthrough kit	E09080000
EB3 Water flow switch kit	E09081000
EB3 sweep unit	E09082000
EB3 Motorized turret drive kit	E09083000
EB3 Manual turret drive kit	E09084000
EB3 / FL 400 / FL 500 Mounting kit	E09093000
19inch rack adaptor for EB3 controls	D35422000

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