MBE
KOMPONENTEN | DR. EBERL

ORGANIC MATERIAL EFFUSION CELL OEZ

- Controlled evaporation of volatile organic materials in research and industry
- Fabrication of OLED and organic solar cells, or spintronic devices
- Precise deposition with no temperature overshoot (stability to ± 0.05K)
- Operating temperatures 50 - 700°C

Organic Effusion Cells OEZ 40-10-22

Organic Effusion cell OEZ 63-35-33-S:
OEZ source with 35 cm^3 crucible, mounted on a DN63CF (O.D. 4.5") flange, with integrated water cooling and rotary shutter

Organic effusion cells OEZ 00-12-22:
Four free-standing 12 cm^3 cells, custom-tailored for co-deposition in small OLED pilot deposition system

Thermal evaporators of the OEZ type are dedicated to the controlled evaporation of all kind of volatile organic materials. They can be used for research or production of e.g. OLED devices, organic solar cells, molecular electronics, organic spintronics, etc.

All OEZ products denotes a group of diversified sources that are all characterized by excellent temperature stability, homogeneous temperature distribution within the crucible and a wide temperature range from 50 to 700°C.

The PID controlled temperature stability of ±0.05K allows precise control of the deposition rate. By design temperature hotspots and overshooting are effectively eliminated, which prevents decomposition of the organic material.
Optional beam shaping devices allow high film thickness homogeneity of the evaporated molecules along with an efficient material utilization. On request the plume shape can be projected by Monte Carlo simulations.

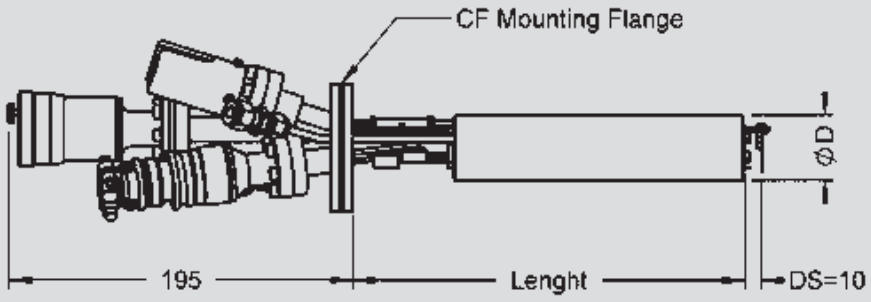
Depending on the crucible size, OEZ cells can be used for evaporation of small amounts of expensive materials (for fundamental research applications) or deposition of large amounts of organics (in industrial production processes). Crucible replacement is easy and quickly accomplished. While quartz is the preferred material for the evaporation of organics, others like PBN, alumina, or graphite are available as well.

Various models with single or multiple cells on the same flange ensure adaptability to miscellaneous organic thin film applications. The range of crucibles starts with 0.2 cm^3 crucibles for small sample preparation in, e.g., surface science and reasonably ends with 25 cm^3 crucibles for samples of several inches diameter.
With the rugged and reliable design, inherent to every OEZ, long and stable operation - a basic requirement for industrial and reasearch use - is guaranteed.

With integrated cell shutters both controlled sub-monolayer deposition and growth of thicker closed films is possible. An automated shutter actuation can be accomplished by applying electrical or pneumatic add-on shutter modules to the assembly.

Technical Data

Mounting flange	DN40CF (O.D. 2.75") or larger;
	customized non-flange built cells on request
Filament	Tantalum wire heater
	(standard, hot-lip or dual filament configurations)
Temperature sensor	thermocouple NiCr/NiAl (Type K); others on request
Bakeout temperature	250°C
Operating temperature	50°C - 700°C
Outgassing temperature	800°C (1000°C without crucible)
Crucible capacity	2 cm^3 up to 60 cm^3
Crucible material	Quartz; others (PBN, alumina, etc.) on request
Cooling	single cells: water cooling shroud (option K)
	dual and quad cells: integrated water cooling between the heaters
Shutter	integrated rotary shutters (**S**)



Schematic drawing of the Organic Material Effusion Cell OEZ
(Drawing shows OEZ 40-10-22-S)

Dr. Eberl MBE-Komponenten GmbH
Josef-Beyerle-Str. 18/1
71263 Weil der Stadt, Germany

Fon +49 7033 6937-0
Mail info@mbe-components.com
Web www.mbe-components.com