

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 $\pm 0.05\text{K}$)
- Operating temperatures 50 - 700°C



Organic Effusion Cell OEZ 40-10-22-KS



Organic Effusion cell OEZ 63-35-33-S with 35 cm³ crucible, mounted on a DN63CF (O.D. 4.5") flange, with integrated water cooling and rotary shutter



Organic effusion cell OEZ 50K-11-37-KKS on a KF flange

OEZ thermal evaporators are designed for the controlled evaporation of all types of volatile organic materials. They can be used for research or production of e.g. OLED devices, organic photovoltaic cells, molecular electronics, organic spintronics, etc.

The OEZ product line is a group of diversified sources, 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 $\pm 0.05\text{K}$ allows precise control of the deposition rate. The design effectively eliminates temperature hotspots and overshooting, preventing decomposition of the organic material.

Optional beam shaping devices allow high film thickness homogeneity of the evaporated molecules along with efficient material utilization.

Depending on the crucible size, OEZ cells can be used for the evaporation of small amounts of expensive materials (for fundamental research applications) or for the deposition of large amounts of organics (in industrial production processes).

Crucible replacement is quick and easy. While quartz is the preferred material for organic evaporation, other materials such as PBN, alumina or graphite are available.

For HV applications, ISO-K and KF cells are available as shown in the figure to the left.

Different models with single or multiple cells on the same flange ensure adaptability to different organic thin film applications. Crucible sizes range from 0.2 cm³ crucibles for small sample preparation, such as surface science, to 200 cm³ crucibles for samples several inches in diameter.

The rugged and reliable design inherent in every OEZ ensures long and stable operation - a basic requirement for industrial and research use.

Integrated cell shutters allow controlled sub-monolayer deposition as well as growth of thicker closed films. Automated shutter actuation can be achieved by adding electrical or pneumatic shutter modules to the assembly.

Technical Data

Mounting flange	DN40CF (O.D. 2.75"), DN63CF (O.D. 4.5") or ISO-K / KF flanges
Dimensions	L=220-650 mm; D=16-37 mm; DS=15 mm (DN40CF) / 20 mm (KF and DN63CF); TL=L+DS+5 mm; OL=95-196 mm; AR=53-85 mm
Filament type	Ta wire heating filament: standard (SF), hot lip (HL), cold lip (CL), dual (DF)
Thermocouple	NiCr/NiAl (type K)
Bakeout temperature	250°C
Outgassing temperature	max. 1100°C
Operating temperature	50°C - 700°C
Cooling	integrated water cooling or separate cooling shroud
Crucible	0.2 cm ³ up to 200 cm ³ ; Quartz, PBN, Al ₂ O ₃ (other materials on request)
Options	integrated water cooling (K or KK), integrated rotary shutter (S)

