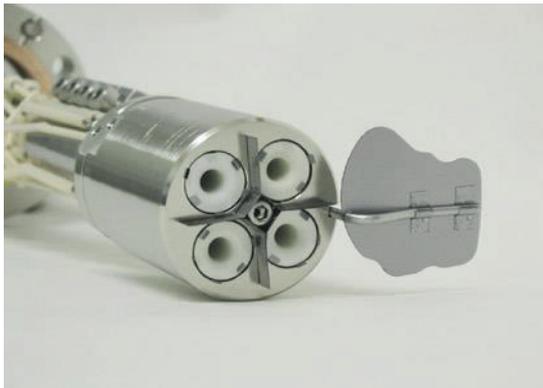


ORGANIC MATERIAL EVAPORATOR CLUSTERS OEZ

- 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 temperature 50 - 700°C



Dual cell OEZ 40-2x1-14-S:
Two 0.6 cm³ crucibles on a single DN40CF (O.D. 2.75") flange, with integrated water cooling and rotary shutter



Quad cell OEZ 40-4x1-12-S:
Four 0.2 cm³ crucibles on a single DN40CF (O.D. 2.75") flange, with integrated water cooling and rotary shutter



Dual cell OEZ 63-2x10-22-S:
Array of two cells with 10 cm³ crucibles, custom-tailored for co-evaporation in small 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 operating temperature range from 50 to 700°C.

Several features and options of OEZ clusters allow their application in research as well as industrial deposition processes.

A precise control of the deposition rate is possible by the excellent PID controlled temperature stability. The design effectively eliminates temperature hotspots and overshooting, preventing decomposition of the organic material.

For the protection of sensitive research equipment during in-situ experiments specially designed nozzles are available (e.g., for in-situ co-deposition in UHV STM systems).

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 clusters 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 multiple cells on the same flange ensure adaptability to miscellaneous organic thin film applications. The range of crucibles starts from 0.2 cm³ for small sample preparation in, e.g., surface science and reasonably ends with 25 cm³ 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.

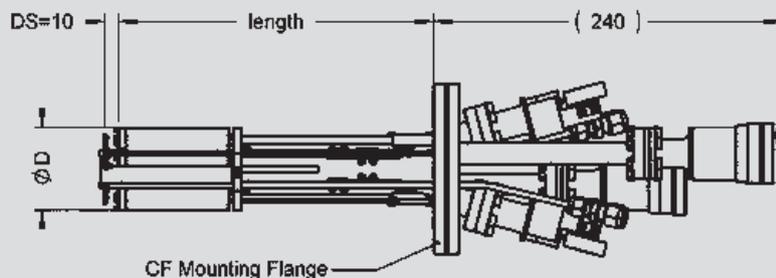
With integrated cell shutters both controlled sub-monolayer deposition and growth of thicker closed films are possible. An automated shutter actuation can be accomplished by applying electrical or pneumatic add-on shutter modules to the assembly, as shown in right-hand figure.



Quad cell OEZ 100-4x10-22-KS:
Four 10 cm³ crucibles on a single DN100CF (O.D. 6") flange, with integrated water cooling and rotary shutter

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	300°C
Operating temperature	50°C - 700°C
Outgassing temperature	800°C (1000°C without crucible)
Crucible capacity	0.2 cm ³ up to 25 cm ³
Crucible material	Quartz; others (PBN, alumina, etc.) on request
Cooling	integrated water cooling between the heaters
Shutter	integrated rotary shutters (S)



Schematic drawing of the Organic Material Effusion Cell OEZ Cluster
(Drawing shows OEZ 40-2x1-12-S with shutter)