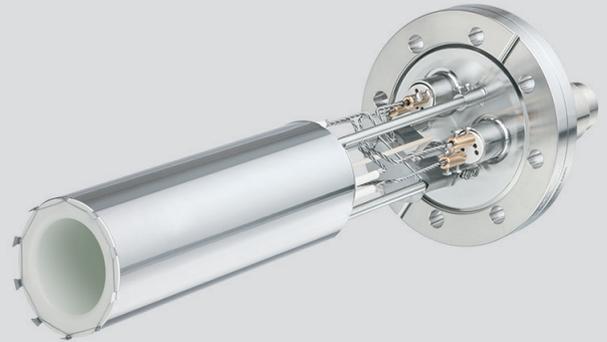
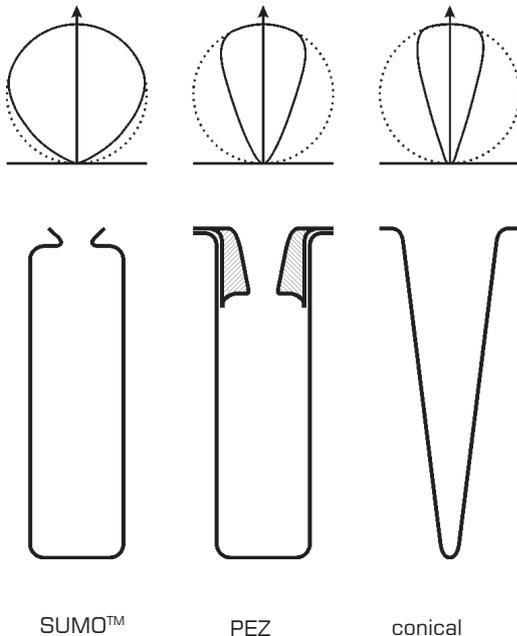


PRODUCTION EFFUSION CELL PEZ

- Precise run-to-run flux reproducibility
- Low shutter related flux transients
- High material efficiency due to beam shaping
- 40 to 4000 cm³ PBN crucible
- Excellent uniformity
- Compatible to GEN II, EPI, Veeco, VG or Riber systems



PEZ 63-130-54 on DN63CF (O.D. 4.5") flange



SUMO™

PEZ

conical

Comparison of beam shapes with bottlenecked SUMO™ crucible, PEZ crucible with insert, and conical crucible. The PEZ with long conical insert unites the advantages of a conical crucible beam shape with the large capacity and run-to-run flux reproducibility of a cylindrical crucible.



Airside view onto flange design of PEZ 63-130-54: The picture demonstrates the rugged and reliable design of the cell with removable flanged feedthroughs, making it ideal for production systems.

The Production Effusion Cell PEZ series is designed to meet the particular requirements of gallium, indium and other material layer deposition in MBE systems with high throughput, where good run to run stability and most efficient source material utilization is needed.

Using a large crucible with a customized beam shaping insert allows combining high cell capacity with excellent thickness uniformity and flux stability properties. 500g of gallium or 600g of indium are the maximum loads of the 130 cm³ crucible depending on cell positioning on customer's MBE system.

The PEZ combines the advantages of conical and cylindrical crucibles:

- The crucible insert provides conical beam shaping, which results in minimized waste of material and excellent uniformity.
- Conical crucibles show the effect of filling level related flux changes, because of the continuous change in evaporation material surface. This effect is highly reduced for PEZ with insert, because the surface is constant during a growth campaign.
- Shutter transients are a common problem for layer growth when using standard crucibles with wide orifice. The influence on the thermal stability of the molten material caused by shutter action is virtually eliminated by the crucible insert's function as a thermal buffer and by the use of dual filament heating.
- Dual filament heating allows keeping the conical insert at higher temperatures to avoid material condensation.

Due to its compact design the large capacity Ga/In Production Effusion Cell is compatible to most standard MBE systems. Optimized crucible inserts are provided to fit Varian, EPI, Veeco, VG or Riber MBE systems.

Applications

The Production Effusion Cell with beam shaping crucible insert is the ideal well proven source for evaporation or sublimation of gallium, indium, and other materials in MBE growth applications.



PEZ 150-700-125 large capacity Ga/In production effusion cell on DN150CF (O.D. 8") mounting flange

Typical applications for PEZ effusion cells are:

- GaAs/GaInAs/AlGaAs MBE growth
- GaInP MBE growth
- GaN MBE growth
- III-V research and production MBE

Technical Data

Mounting flange	DN63CF (O.D. 4.5") to DN200CF (O.D. 10")
Dimensions in vacuum	216 mm - 400 mm / depends on MBE system
	customized length available
Filament type	Ta-wire dual filament, individual use of each filament
Thermocouple	2x type C (W5%Re/W26%Re)
Bakeout temperature	max. 250°C
Outgassing temperature	up to 1500°C
Operating temperature	up to 1400°C
Max. electrical parameter for PEZ 63-130-54	top filament 700 W/14 A - bottom filament 700 W/14 A

