

微型有机物升华器

微型有机物升华器专为实验室研究或微小规模的制备而设计，可以装配高真空或超高真空系统，主要用于通过热升华和沉积的方式制备有机分子（化合物）。升华器具有各种不同的体积，特殊的设计结构可以允许快速更换坩埚，各种材质的升华容器可选。

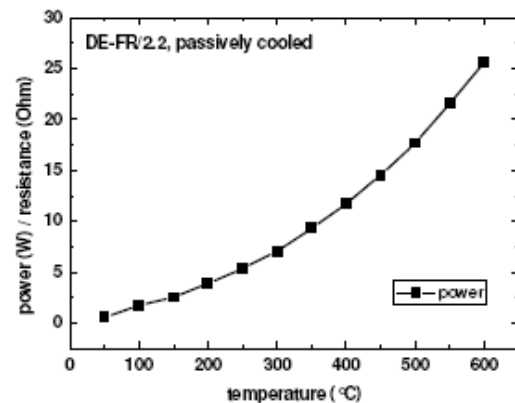
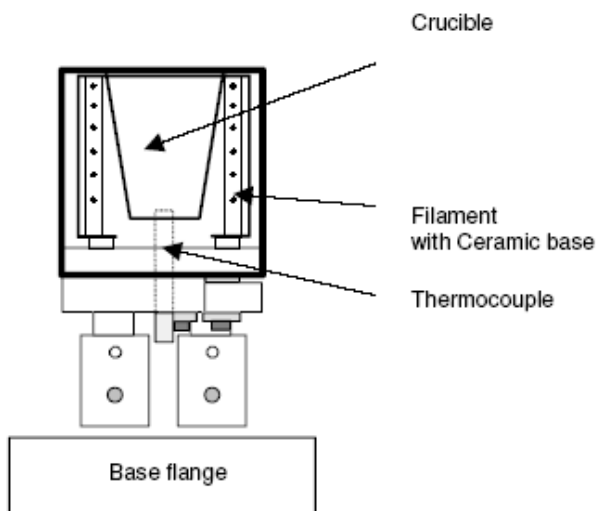


技术指标:

- 坩埚大小 : 0.5cc, 1cc, 2cc, 4cc and 8cc, 其它体积定制; 各种形状, 如锥形、圆柱体、有无空隙等可选
- 坩埚材质 : 氧化铝、氮化硼、氮化铝、石墨、石英等
- 通常 (最大) 沉积速度 : 1E-3... 5 nm/sec at distance 150 mm, 与物料有关
- 加热系统 : 带陶瓷绝热器的钨盘卷丝, 最大8 A / 60 W, 与升华器的大小有关
- 温度范围 : 50°C ~ 600°C
- 温度精度 : > 0.1 K depending on the PID controller
- 热电偶 : Type K

选项:

- 集成的防护栅
- 不锈钢材质容器



Organic Molecular Evaporator

DE-FR/2.2, DE-FR/4.1, DE-FR/8.1



DE-FR/2.2 on DN40CF

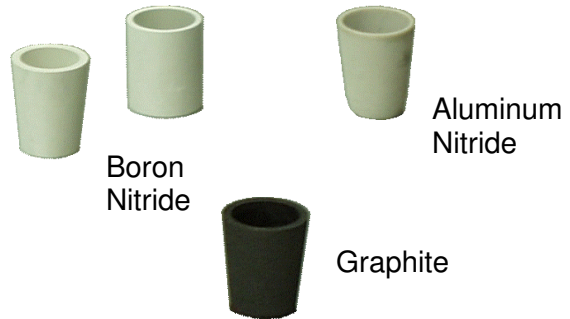
The Organic Molecular Evaporators are designed for use in R&D or small-series production and may be applied in high and ultra high vacuum assemblies to deposit organic molecular compounds by thermal physical vapor deposition. The evaporator is available for different sizes. The design allows quick and easy crucible replacement. For each evaporator various materials and types of crucibles may be provided. The evaporators may be based on DN40CF flange or larger. Further mounting options are available.

Specifications

| | |
|--------------------------|--|
| Crucible size | 0.5cc, 1cc, 2cc, 4cc and 8cc (various forms: e.g. tapered, cylindrical, w/o aperture) |
| Crucible material | Alumina, Boron Nitride, Aluminium Nitride, Graphite, Quartz |
| Typical deposition rates | (10 ⁻³) ... 5 nm/sec at throw distance 150 mm (material dependent) |
| Heating system | Tungsten – coil with ceramic insulators max. 8 A / 60 W (depending on size) |
| Temperature range | 50 °C – 600 °C |
| Temperature stability | > 0.1 K depending on the PID controller |
| Thermocouple | Type K |

Crucibles

The evaporator crucibles may consist of various materials (Al_2O_3 , BN, AlN, graphite, quartz) and shapes depending on the requirement of the used compounds. They may be replaced easily to ensure quick material exchange. The crucible materials with outstanding high thermal conductance evenly distribute temperature and minimize organic decomposition. The deposition characteristics may be tuned by adapted crucible shapes to optimize material consumption (e.g. tapered, cylindrical, w/o aperture).



Operation

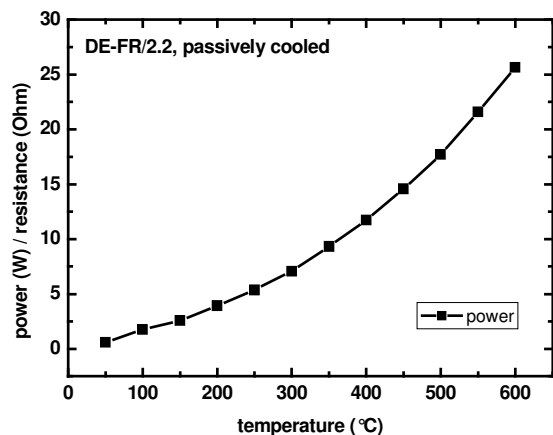
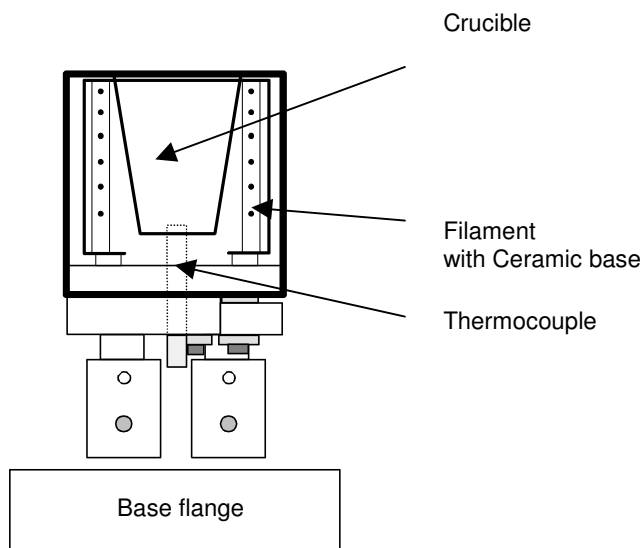
The resistive heater consists of a tungsten filament supported by a ceramic base. The temperature control is done by a thermocouple having close contact to the bottom of the crucible. Therefore the direct control of the deposition process is ensured. In combination with the high-grade crucibles the deposition process is highly stable and reproducible (temperature control to +/- 0.1 °C).

Options

- Integrated shutter (pneumatic)
- Stainless steel version
- water cooling
- triple source assembly
- multiple source assembly
- temperature controlled power supply (PID control)

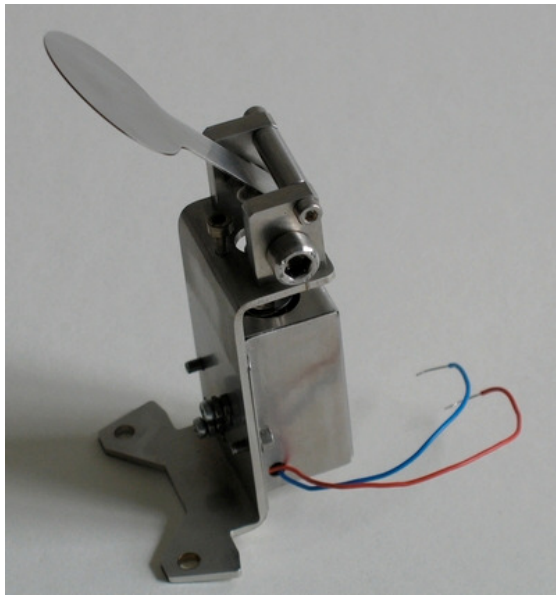
Scope of delivery

The evaporator is supplied with a tapered crucible (Alumina) and connectors for flange mounting.



Flip shutter assembly with electro-magnetic actuation for HV

sh-2-sol-v



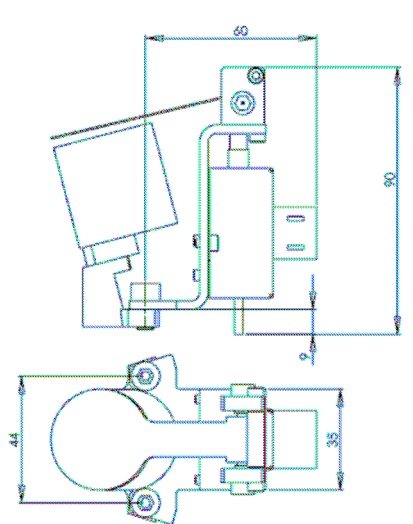
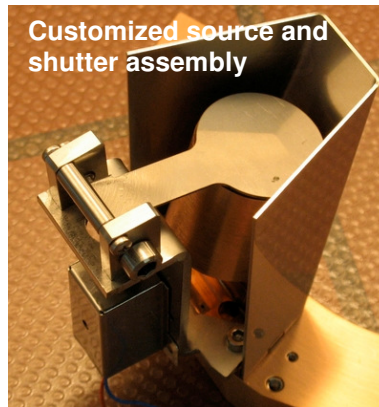
The flip shutter assembly permits to cut off the flow of target material to the substrate on the thin film deposition processes at high vacuum conditions. It is based on a bistable solenoid actuator and is operated by voltage impulses. The HV compatible actuator allows a most flexible assembly within the vacuum chamber without the need for a mechanical feedthrough. All mounting parts are made of stainless steel. The shutter plate is easy to remove for cleaning. By standard the shutter fits to CreaPhys Organic molecular evaporators DE-FR/2.1 or DE-FR/2.2. Individual mounting options and modified shutter designs may be ordered according to the customer requirements. Please ask.

Specifications

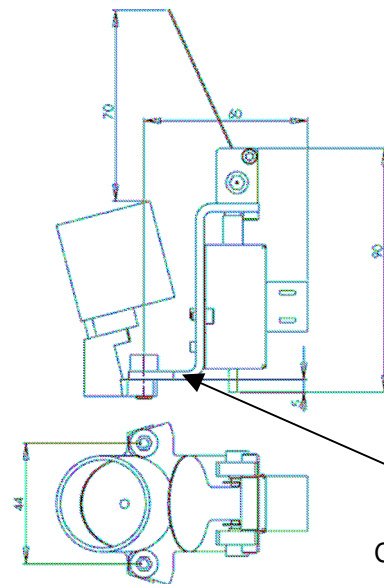
| | |
|--------------------------|---|
| Application | Source shutter , flip shutter High vacuum ($< 5 \cdot 10^{-7}$ mbar) |
| Operation | Electro-magnetic bistable solenoid Pulsed operation Position release by reversion of polarity |
| Voltage | 24 VDC |
| Nominal coil power | 9.5 W |
| Pulse duration (approx.) | 25 ... 500 ms |
| Angle variation | Typical 80° |
| Operating temperature | max. 60°C |
| Conditioning | Heated to 85°C at high vacuum |

Mounting option

The figures below show a favored mounting option. It is used for organic molecular evaporators based on a ring assembly. The connection may be realized by blank cables or by a ceramic terminal strip.



Closed position



Open position

Customized assembly

Evaporation Control Unit

CU 103, CU 203, CU 303



The Evaporation Control Units CU 103, CU 203 and CU 303 have been designed as temperature-controlled power supply to operate vacuum evaporators of the DE-series (e.g. type DE-2.2), but is not limited to. It enables the operation of one, two or three vacuum evaporators independently. Standard co-evaporation processes are easily possible. The devices fit also to any further temperature-controlled application within the specification.

The combination of approved EURO THERM®-controller with high quality power supply guarantee reliable and stable operation. Main advantages of the Evaporation Control Units CU 103, CU 203 and CU 303 are the potential-free output and protection against short-circuit. The output power is controlled by the EURO THERM®-controller and limited in current. The automatic tune function allows easy PID-parameter setting and ensures best temperature stability. Most significant parameters are the PID-parameter of the EURO THERM®-controller.

Specifications

Output power (per channel)

max. power 120 W
voltage 0 ... 53 V
current 0 ... 10 A
current controlled, potential-free,
short-circuit-proof

Temperature sensor Type K or C
Temperature resolution 0.1 K

power supply 230 VAC / 50 Hz
(optional: 110 VAC / 60 Hz)

Dimensions (desktop housing)

Height 3RU, 133.4 mm
Width 84HP, 426.8mm
Depth 315mm



CreaPhys GmbH

Overbeckstraße 39a
01139 Dresden, Germany
Phone: +49 (0) 351/407 916–20

Fax: +49 (0) 351/407 916–22
E-Mail: info@creaphys.com
www.creaphys.com

Description (continued)

Additionally, each channel is equipped with a digital display. It monitors the output current and allows easy error diagnostics in the case of malfunctions of the evaporators.

By default the device is delivered with a desktop housing. On customer request the device may be delivered in 19" slot housing.

Optionally the Evaporation Control Units CU 103, CU 203 and CU 303 may be equipped with a RS232 or RS485 serial interface for computer control and a INPUT / OUTPUT-interface for further logic signals (e.g. alarm signal).

Scope of delivery

- Desktop housing including power supply cord
- 2m cables for temperature signal
- 2m power cable for evaporator
- operating instructions

Options

- Serial interface RS232
- Capability to switch between the internal and an external power supply via I/O
- Customer-specific I/O modules (relay, logic, analog)
- 19" Rack mounting



CreaPhys GmbH

Overbeckstraße 39a
01139 Dresden, Germany
Phone: +49 (0) 351/407 916–20

Fax: +49 (0) 351/407 916–22
E-Mail: info@creaphys.com
www.creaphys.com