HT cell – High Temperature cell

Fe, Co, Cr, Ni, V, Au, Ti, Rh, Ru, La, B…

- **Operating temperature range : from 500°C up to 2000°C**
- **Ultra high vacuum design, clean and easy to use**
- **Self supporting filament for clean operation**
- **Low cost alternative solution compared to e-beam gun**
- **Very large variety of crucibles and liners available**

Product introduction

Riber High Temperature effusion cells provide clean operation under UHV environment at a temperature up to 2000°C.

This cell is designed for ease of use with low vapor pressure materials which usually require the use of an electron-gun for evaporation. The necessary temperatures for most vacuum thin film deposition operations can, in fact, be achieved readily through use of a robust resistively heated filament.

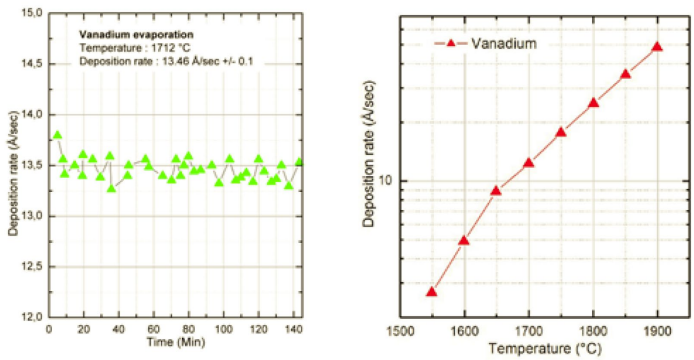
Because this filament is self supported it is also possible to remove insulating material from the hot zone and avoid the problems of contamination due to insulator outgassing during the operation.

Only refractory materials are used in the hot zone of the cell. The use of insulating ceramics is restricted to the cooler region of the source, preventing outgassing during operation.

Several types of crucibles and liners made of refractory metal and ceramic materials can be employed, according to the source material to be evaporated, and the desired application.

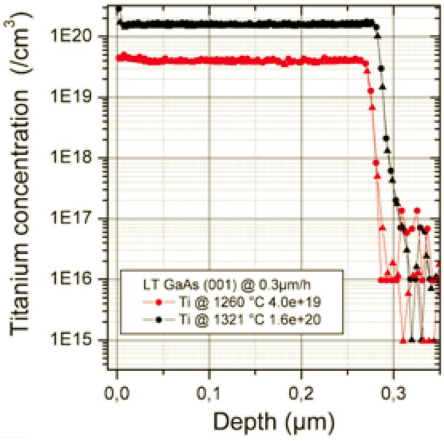
Models integrating a water cooling circuit surrounding the source as well as an integrated shutter are available.

Results



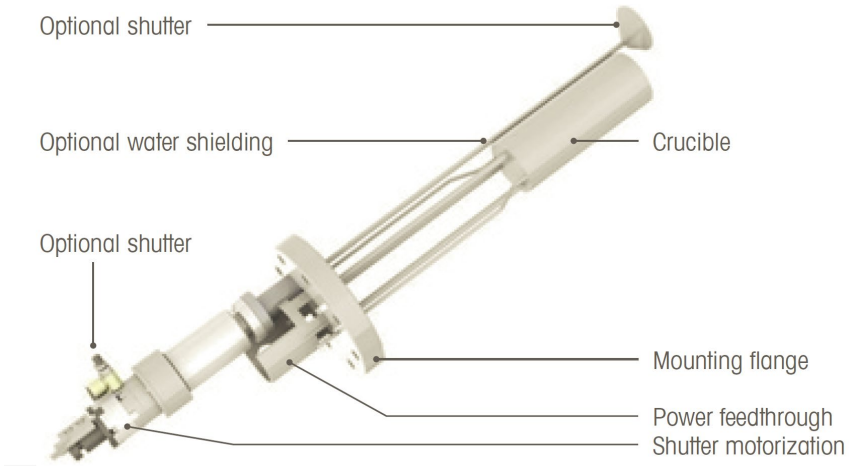
Vanadium evaporation at 1712°C shows stable flux at 13.5Å/sec.

Courtesy of K.Durmenil, Lab. Phys. Mat., Univ. H. Poincaré Nancy



SIMS profile on low temperature GaAs(001) doped with Titanium. Titanium doping is performed at two temperatures, 1321°C and 1260°C. Deposition rates reach 2.510-2 Å/sec and 6.810-3 Å/ sec, respectively. A stable and reproducible Titanium flux profile is obtained run after run.

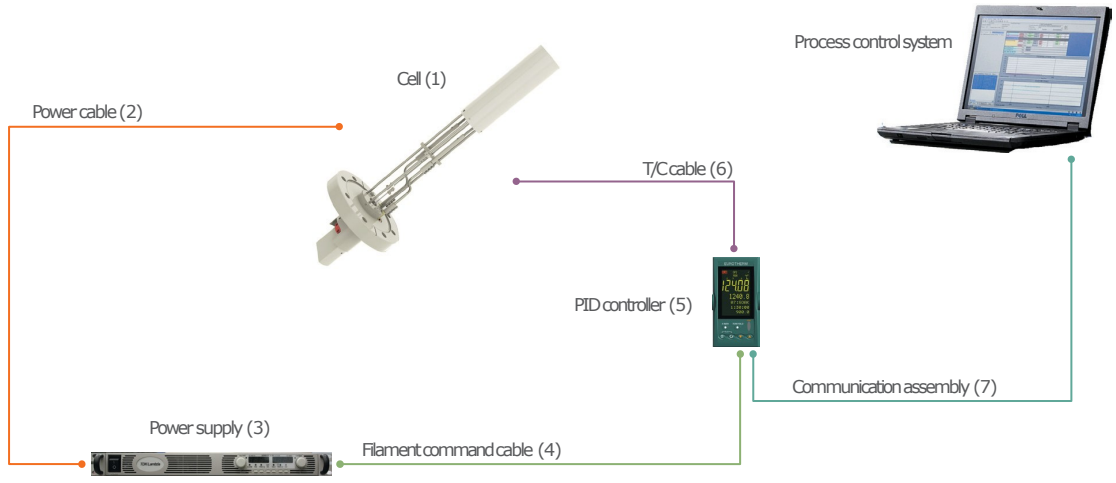
Layout



Specifications

Source model	HT12	MHT 35
Filament	Single	
Heating filaments	W wire, no insulator support	Ta wire
Crucible material	Ta, PG, W, PBN,...	
Useful capacity (max load dimensions)	12 cc	35 cc
Mounting flange (min)	CF 40 (2" 3/4)	
Max outgassing temperature	2000°C	1700°C
Typical operating temperature	700-1800°C	500-1500°C
Max continuous temperature	1900°C	1550°C
Thermocouple	C-Type	
Temperature stability	+/-0.2°C	
Power consumption	<1000 W	<600 W
Options	Water cooling / integrated shutter (CF63)	

Component interfacing



CELLS & COMPONENTS – HIGH TEMPERATURE CELLS

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