

In & Ga Graphite-crucible cells for Nitrides - MS

- High loading capacity
- Excellent flux stability
- Outstanding uniformity
- High reliability, durability and low maintenance
- Cost effective solution - made to last
- Re-usable crucibles



Product introduction

The Master Source benefits from a technology which consists of a specific crucible design combining high performance with low operating and maintenance costs. The ultra-pure beam of stable flux is a result of the MS crucible concept.

Crucibles are made of Pyrolytic Graphite, that is not wetted by Ga or In which guarantees a very low defect density. These cells are preferably used for Nitrides application, where In & Ga usually tend to overflow under nitrogen atmosphere with a PBN crucible. Conversely, graphite crucible may induce unwanted C doping that could disturb mobility in usual III-V applications.

The nominal capacity of the Master Source varies from 25 cc to 5800 cc, for research applications to production. The Master Source is the optimal cell technology for the evaporation of materials with low and medium vapor pressure. It is used for elements III, but also allows the evaporation of more exotic materials like Ag, LiF, CdTe, etc.

The MS crucible is designed in two parts: the reservoir containing the material, and the effusion nozzle screwed into the reservoir. The removable nozzle of the MS crucible is shaped in such a way that it gives better uniformity and an optimal utilization of the material on the

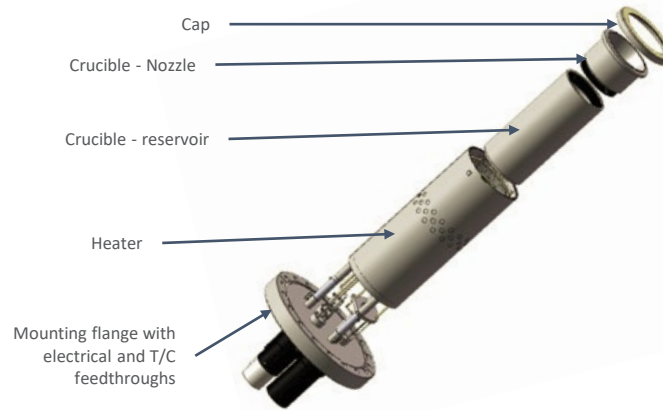
wafer.

The cylindrical reservoir shape maximizes the capacity of the crucible and allows the loading of a single shaped piece of material. The use of a shaped charge helps to reduce surface contaminations and results in high layer performances. The nozzle shape defines the spatial distribution of the flux.

The innovative design permits a narrow or wide flux beam, governing material consumption and defining uniformity criteria for the geometry of each system.



Layout

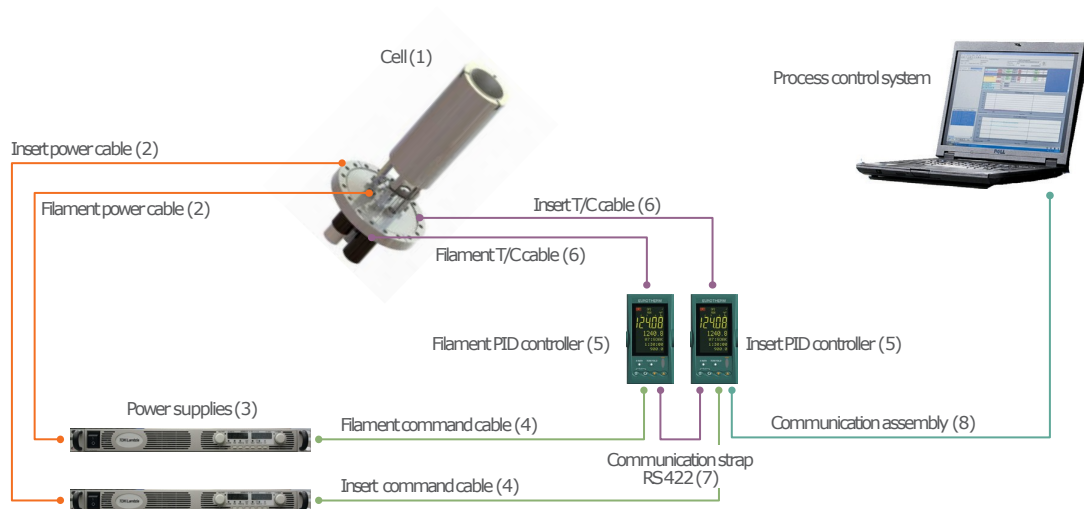


Specifications

Cell characteristics	MS 240	MS 440	MS 540	MS1640	MS4000
Source capacity	40 cc	85 cc	130 cc	380 cc	400 cc
Mounting flange	CF35	CF63	CF100	CF125	CF150
Temperature stability	± 0,2°C				
Crucible shape	Cylindrical				
Crucible material	Pyrolytic graphite				
Filament type	Dual Ta wire				
Thermocouple type	2x C-type				
Typical operating temperature*	100 – 1150°C				
Maximum outgassing temperature	1350°C				
Power required for maximum temperature	250 W	400 W	850 W	900 W	3 600 W
Power supply	Two power supplies / Two temperature controllers				

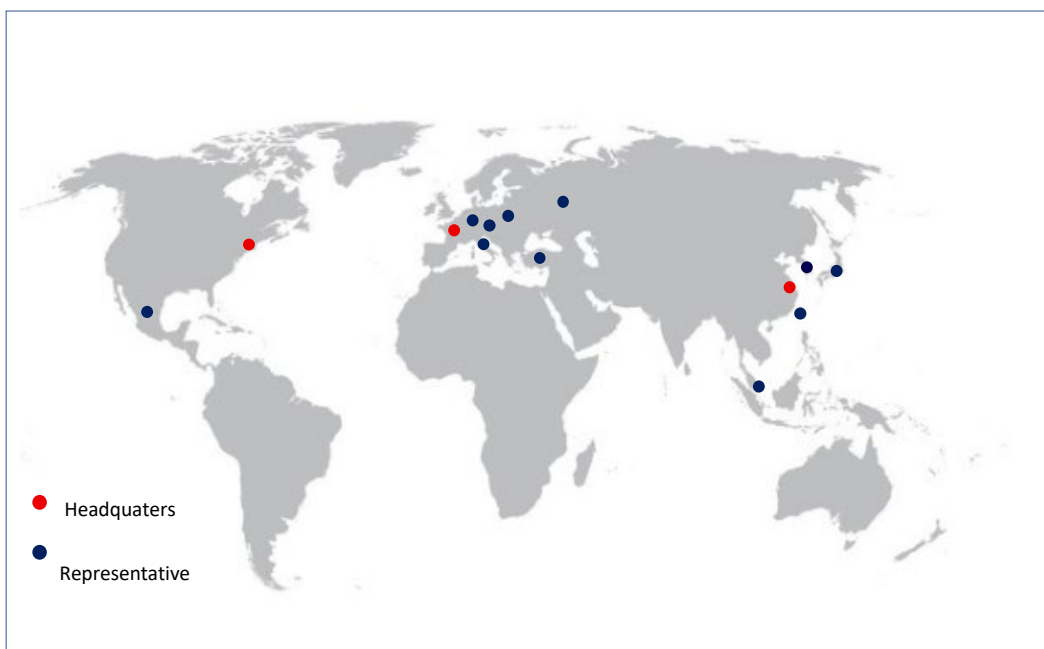
*For some versions and systems adaptations, water cooling may be necessary and would require upsized flange

Component interfacing



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For more information, please contact your local sales representative



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