

# Gas Injection System

Combination with a FIB or FEB  
To extend its capabilities



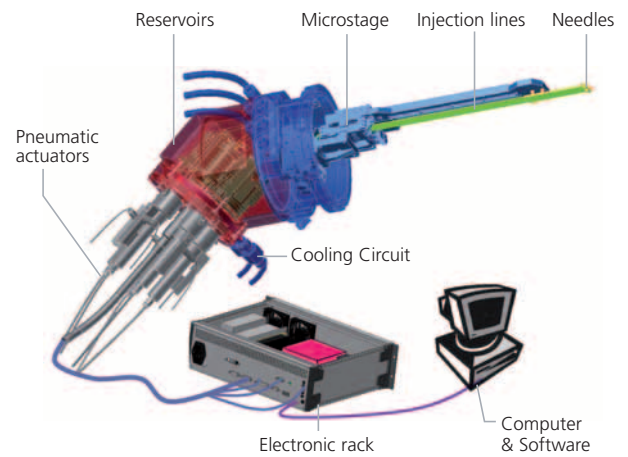
## Gas Injection System (GIS)

A Gas Injection System is an instrument which is used in combination with a focused beam to extend its capabilities. This technique of micro or nanofabrication can be used for deposition or etching of material and is named FEBIP or FIBIP (Focused Electron/Ion Beam Induced Processes).

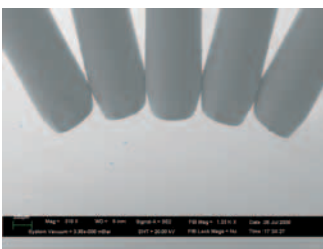


### Description :

A chemical product or "precursor" is stored in a proof reservoir, which can be open or closed by a pneumatic actuator. A GIS can be equipped with 5 different precursors. A heating of the reservoir allows to sublime the precursor. A gas phase is created. While the reservoir is open, the gas flows through a heated line and is injected in the chamber through the nozzle. All reservoirs and lines can be heated separately thanks to a dedicated software. A reservoir (dedicated to high pressure precursor) can be cooled down thanks to a water cooling circuit. Each line has its own needle. A 3-motorized axis stage allows to accurately position the needle in the working area.



### Nozzles Block



SEM picture showing the 5 needles of the GIS.

#### Available Precursors :

List of available precursors for deposition :

- Carbon
- Platinum
- Tungsten
- Silicon oxide

List of available precursors for selective etching :

- Fluorine
- Iodine
- Oxygen

