

## Atomic Hydrogen Source



- Wide Area Re Filament
- Operation at 2100 C
- Single Bounce Delivery of Source Material
- Integral Water Cooling
- Standard VCR Gas Fitting, Others Available
- Dual Gas Inlet Available
- Robust, Reliable Design

### Product Description

The E-Science atomic hydrogen source utilizes a wide area Re filament to crack atomic hydrogen into single hydrogen atoms for substrate cleaning. The wide area allows for more efficient cracking of the hydrogen and can operate at a very high temperature. In addition, the surrounding materials used in the source are carefully selected to withstand the high temperatures and the effects of atomic hydrogen.

The source is relatively small and fits onto a 4.5" CF mounting flange. The source also can be fitted with an additional gas source inlet. This second inlet is used primarily for a dopant gas such as  $\text{CBr}_4$ , but other gasses are available as well. Typically, users provide their own gas delivery system which provides simple on/off switching.

As an option, a thermocouple can be mounted to provide a reference temperature to the source. The thermocouple is typically mounted on the outside of the source making it more of a reference rather than a direct temperature measurement.

The length of the source can be easily adjusted to the requirement of the system. Water cooling can also be added to the outside of the source to protect the surrounding environment.

The performance of the E-Science Atomic Hydrogen Source is excellent. The filament can achieve temperatures up to 2100 C efficiently cracking the hydrogen molecules. Unlike an ECR or RF plasma source, this thermal cracker generates only atomic H and  $\text{H}_2$  molecules. Ion generation is minimized reducing the chance of damage from the hydrogen flux.

Contact E-Science for further information on this source.

## Atomic Hydrogen Source Selection Chart

E-Science provides effusion cells for all the major system manufacturers. In addition, E-Science can build effusion cells for other manufacturers systems and for custom reactors. Please refer to the model number convention for ordering your specific effusion cell. Contact E-Science for more information.

### Varian / Intevac / EPI / Veeco MBE Reactors

<b>2" Gen II</b>	<b>3" Gen II, Gen III or Gen20</b>	<b>Gen200</b>	
	EC-000-450-1140-AHS	EC-000-600-1250-AHS-L	

### Riber MBE Reactors

<b>32P</b>	<b>Compact 21</b>	<b>48 / 49</b>	
	EC-000-450-1250-AHS	EC-000-600-1500-AHS-L	

### VG Semicon / Oxford MBE Reactors

<b>V80</b>	<b>V90</b>	<b>V100</b>	
EC-000-450-1285-AHS-L	EC-000-450-1150--AHS-L	EC-000-600-1150-AHS-L	

### Model Number Convention

Model # = A - B - C - D - E - F - G

A = EC for Effusion cell

B = 000

C = Flange Size

i. 275 = 2.75" CF Flange

ii. 450 = 4.5" CF Flange

iii. 600 = 6.0" CF Flange

iv. 800 = 8.0" CF Flange

D = length (in inches \* 100)

E = Type = AHS for Atomic Hydrogen Source

F = L for water cooled (if required)

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