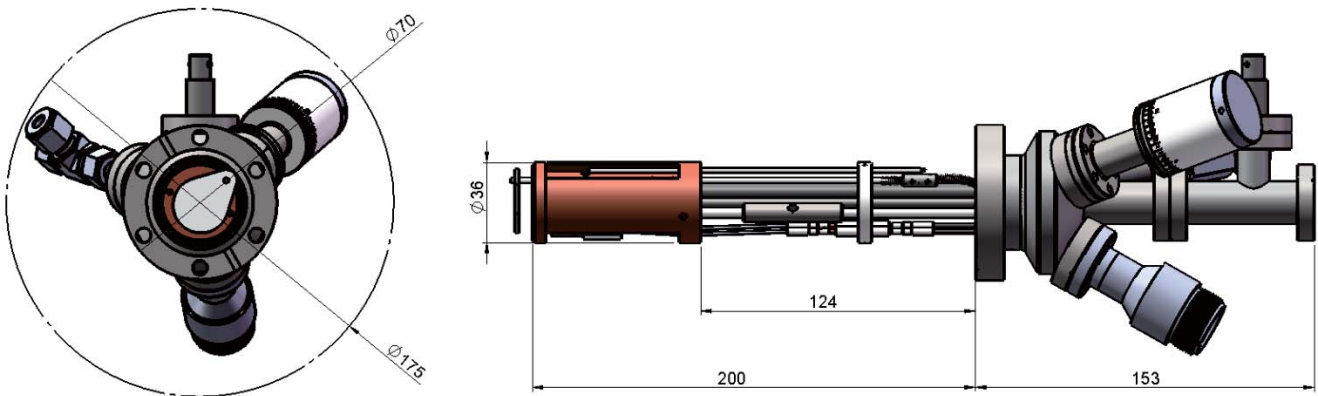


Evaporators

Gas Cracker Source



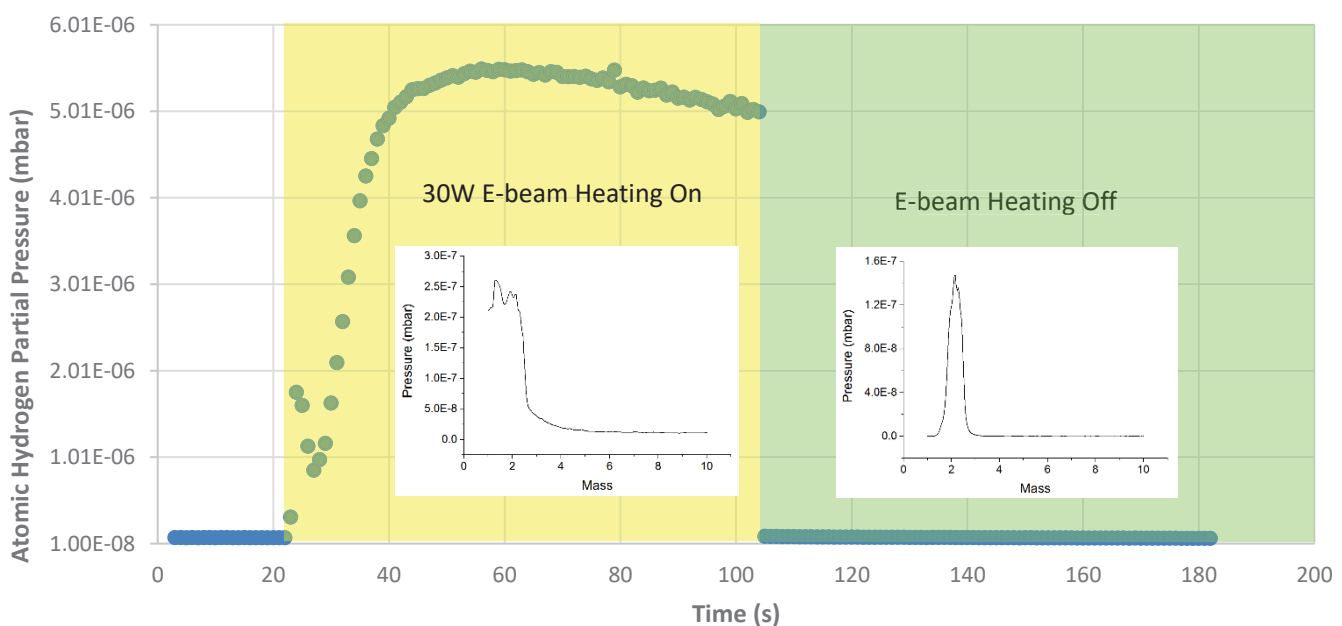
All dimensions in mm

Atomic gas beams such as hydrogen atom beam are widely used for substrate treatment, this is usually done by introducing regulated gas flow through a heated metal capillary. The gas molecular would then dissociate at high temperature and inject into the vacuum.

Considering the very high temperature requirement of the heated capillary, e-beam heating would be the most effective way. Our gas cracker source is designed based on our e-beam evaporator while replacing the metal rod with a refractory metal capillary. With very low power input the capillary could be heated above 1900 degrees and the thermal load on the chamber is negligible, due to the surrounding water cooling and small diameter aperture.

The source comes with a VAT all metal leak valve for regulating the gas flow which allow switching on and off the atom flux within several seconds. Short exposures can be terminated by a shutter (option S) which attenuates the hydrogen atom flux down to the detection level.

So far, the gas cracker source has been only operated with hydrogen and oxygen. The source could perhaps be used as well as a radical beam source by decomposing other molecules at temperatures up to 3000 K. Please inquire for your special application.



*Mass Spectrum taken by SRS RGA 100 at 200mm distance.