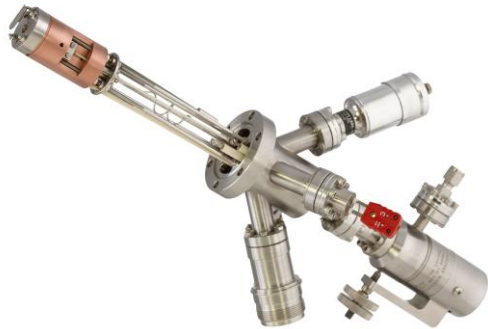


# h-flux

## Atomic Hydrogen Source



The tectra h-flux Atomic Hydrogen Source\* works by thermally dissociating hydrogen in an electron bombardment heated fine tungsten capillary (thermal hydrogen cracker). By bouncing along the hot walls the molecular hydrogen is cracked to atomic hydrogen. This is e.g. very useful for in-situ, damage free cleaning of residual oxygen prior to sample coating or analysis. Other applications are in surface modifications appreciating the high reactivity of Atomic species. The h-flux Atomic Hydrogen Source is UHV compatible and mounted on a NW35CF (2.75"OD) flange, making the source an easy retrofit to existing vacuum systems.

Atomic Hydrogen is used in surface science and thin film technology (MBE, GSMBE) mainly for the applications, like damage free in situ cleaning e.g. GaAs, InP, Ge and Si / removal of residual oxygen and carbon / Low temperature cleaning / Surfactant - improvement of layer properties during growth / post growth surface treatment / chemical passivation and surface reconstruction / annealing of amorphous silicon.

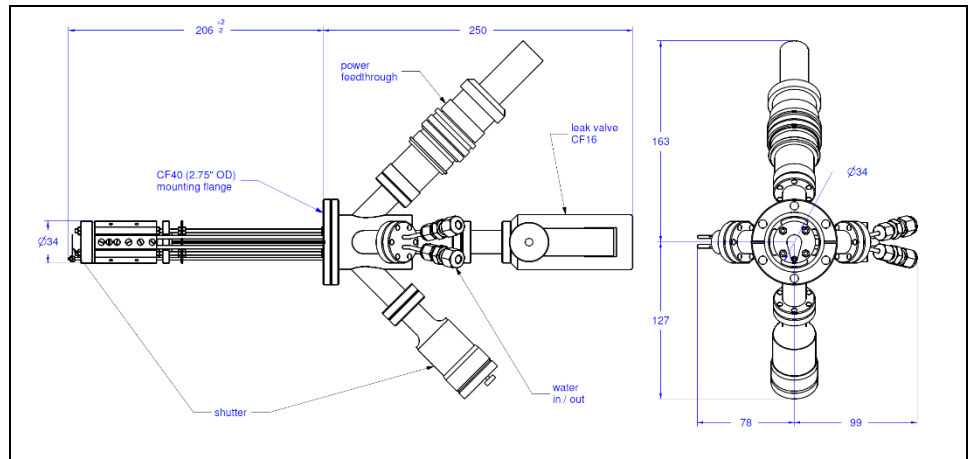
\* In cooperation with Prof. Dr. E. Bertel of the University of Innsbruck

### KEY FEATURES AND BENEFITS

- ♦ Zero residual ion current
- ♦ Integral water-cooling to minimize heat load
- ♦ Thermocouple and PID controller for reproducible and constant operation
- ♦ All feedthroughs are user demountable
- ♦ Almost 100% cracking efficiency
- ♦ UHV compatible without differential pumping
- ♦ Filament made of standard Tungsten wire for in-expansive on-site replacement
- ♦ Shutter optional

# SPECIFICATION

## Dimensions



## Technical Specification

In vacuum length	190 mm (without shutter)
In vacuum diameter	34 mm
Mounting flange	CF35 (2.75" O. D.)
Bakeout temperature	Max. 200°C
Gas Flow (H-atoms)	0 - 5 sccm to 1sccm (typ.)
Hydrogen Flux	$\sim 5 \times 10^{13}$ atoms/cm <sup>2</sup> s
	at 10E-9 mbar with typical pumping at a distance of 10cm
Water cooling	Integral, connection via 1/4" Swagelok fittings
Beam Divergence	$\sim 15^\circ$ half angle
High voltage	1,2 kV (max.) adjustable
Beam current	50 mA (max.) adjustable

## Power Supply

Power	60 W, 230 VAC / 50 Hz (Standard)
	115 VAC / 60 Hz (to be stated with order)
Size	19" rack mount, 3U height

## Options

Leak valve	Required, CF16 (1.33" O. D.)
Shutter	Manual or shutter actuator

## References

"Simple source of atomic hydrogen for ultrahigh vacuum applications", U. Bischler and E. Bertel; J. Vc. Sci. Technol. A 11(2), Mar/Apr 1993

"Quantitative characterisation of a highly effective atomic hydrogen doser", C. Eibl, G. Lackner, and A. Winkler. J.; Vac. Sci. Technol. A 16(5), Sep/Oct 1998.



Please contact us for more Information.  
We and our team behind us will be happy to help you!

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