

VACUUM ULTRAVIOLET (VUV) LAMPS

INTRODUCTION

Cathodeon has developed a range of five high stability deuterium arc sources for use as calibration sources in the far ultraviolet. The 10V heater, 1mm arc aperture lamps are designed and built to a rugged construction with magnesium fluoride windows and may be further ruggedised to meet high acceleration forces encountered in space applications. Output extends into the Lyman Alpha region.

GENERAL CONSTRUCTION

There are two overall length options: The longer version is built for the highest light output stability with the window mounted 102mm from the arc source. The light is prevented from being reflected from the sides of the mounting tubes by multiple baffles giving a solid angle of about 10°. The standard version of the lamp is shorter to make it more compact, the cone angle increasing to 15°.

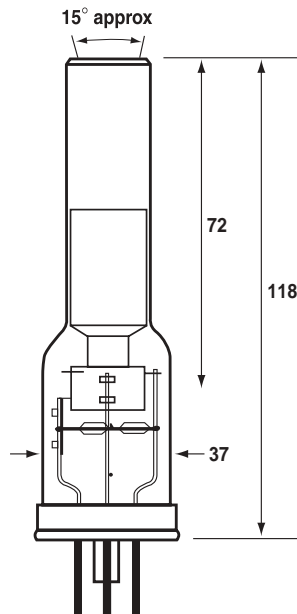


Fig 39 Short Body
Vacuum Ultra-violet Lamp
(Type 3 -V03)

Both versions of the lamp are available with a synthetic silica window for use down to 180nm. Magnesium fluoride lenses are available as an alternative to the flat window to give light collimation.

The use of magnesium fluoride significantly extends the lamp output below the 165nm cut off of synthetic silica. The practical cut off of magnesium fluoride is 112nm, well into the Lyman Alpha region.

The long body lamp V01 is also available without a base, for enclosed vacuum operation. However, vacuum operation is only possible if special arrangements are made to cool the lamp.

SPECIFICATIONS

Heater

10V AC/DC nominal, 1.0A maximum.

Arc initiation

A minimum 60 second operation of the heater is required to warm the emitter, before application of a strike potential of not less than 250V and a current capability of at least 25mA.

Arc run

Recommended running current for the arc is 300mA, though arc currents between 200mA and 500mA may be used. Arc currents above 300mA will shorten the life of the lamp. At currents below 300mA some heater voltage may be needed to maintain arc stability.

Anode voltage

At 300mA/heater off: 60-80V

Colour code

Anode red, heater blue, cathode black

SPECIFICATION	TYPE 1	TYPE 2	TYPE 3	TYPE 4	TYPE 5*
Arc height from window (mm)	102	102	72	72	102
Window material	MgF2	Spectrosil	MgF2	Spectrosil	MgF2
Overall length including base (mm)	146-150	146-150	116-120	116-120	140-144

*Type 5 has less base and is specifically designed for enclosed vacuum operation

ORDERING CODES

LAMP TYPE	ORDERING CODE
Type 1	V01
Type 2	V02
Type 3	V03
Type 4	V04
Type 5	V05

WARRANTY

Vacuum ultra-violet lamps from Cathodeon are covered by warranty for 1 year, or for 500 hours use.

APPLICATIONS

These lamps are suitable for all applications that require high stability and an output down to 112nm.