

Vacuum UV Lamps from Heraeus Noblelight



D 200 high power vacuum UV (VUV) lamps are deuterium discharge lamps of 200 W electrical power. Important properties of the lamps are: directed UV radiation, a broad continuous spectrum between 160 nm and 400 nm, high UV radiation flux at 125 nm and 160 nm.

D 200 light sources with a spectral range between 160 nm and 400 nm have a wide field of applications in the laboratory and in production:

- Optical research with UV radiation
- Quality assurance in the semi-conductor industry
- UV interferometry
- UV spectroscopy at high radiation density
- UV absorption measurements
- Fluorescence excitation
- Photochemical analysis

D 200 vacuum UV lamps are used because of their high photon energy and the high optical resolution of the UV radiation at short wavelengths. The lamps offer a high radiation density, especially at 121/125 nm and 160 nm. At these short wavelengths, there is a high interaction of UV radiation with gas molecules. Consequently, the lamps can be used only under vacuum. Typical applications are:

- Lithography
- Quality assurance in the semi-conductor industry
- Fluorescence excitation
- Photochemical processes with high photon energy

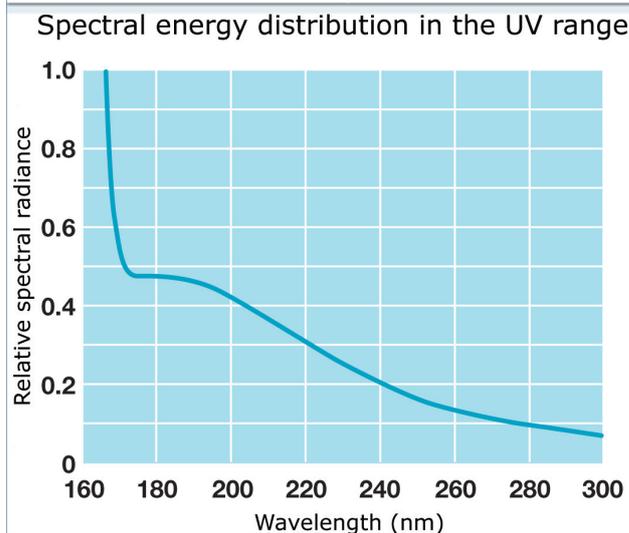
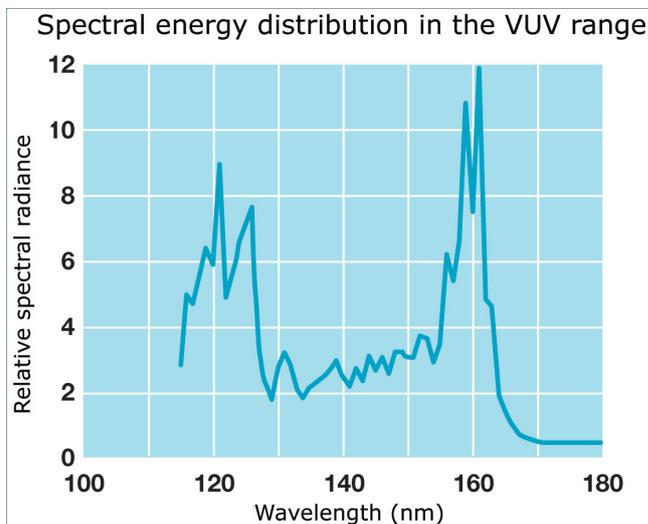
Three different D 200 lamp models are designed for different spectral ranges by means of suitable window materials and specific construction.

Top right image:

All lamp models offer the continuous spectrum between 165 nm and 400 nm. The spectral range 115 nm to 180 nm has the high UV radiation density at the wavelengths 121/125 nm and 160 nm with approximately 20 times the radiation density compared with the continuous spectral range >170 nm.

Bottom right image:

D 200 F-HV / D 200 VUV (left) and D 200 F (right)





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Top right image:

D 200 F opening angle of the UV radiation 50°

Bottom right image:

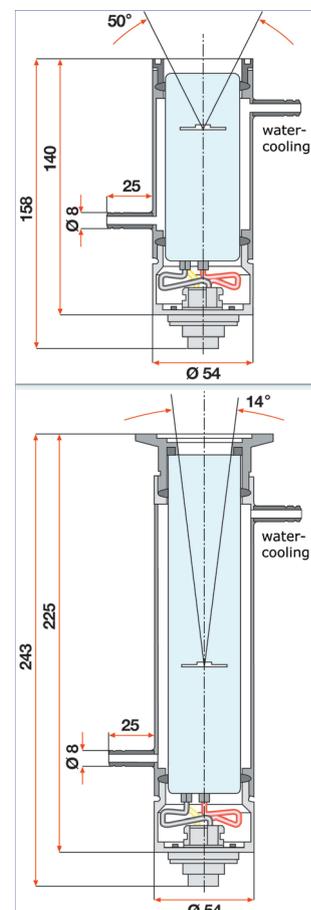
D 200 H-HV / D 200 VUV opening angle of the UV radiation 14°

TECHNICAL DATA AND SPECIFICATIONS

Lamp type:	D 200 F	D 200 F-HV	D 200 VUV
Cooling jacket:	yes	yes	yes
Spectral range:	160 - 400 nm	160 - 400 nm	115 - 400 nm
Window material:	protective glass	vacuum	vacuum
Vacuum flange:	without flange	synth. quartz	synth. quartz
Aperture Ø:	without flange	DN 50 KF	DN 50 KF
Water cooling/volume:	1.0 mm	1.0 mm	1.0 mm
External diameter:	≥0.5 l/min	≥0.5 l/min	≥0.5 l/min
Connector/Amphenol-Tuchel:	54 mm	54 mm	54 mm
Total length:	3109/1	3109/1	3109/1
	158 mm	243 mm	243 mm

ELECTRICAL DATA

Heating up	Heating voltage	6 Vdc
	Heating current	4.5 A
	Heat-up time	30 s
Operating data	Heating voltage	3.0 Vdc
	Heating current	2.5 A
	Ignition voltage	≥500 V
	Anode current	adjustable 0.9 - 1.8 A
	Operating voltage	110+10/-15 Vdc
Stability of the UV radiation	Noise (at 250 nm)	<0.1% p-p
	Drift (at 250 nm)	±0.5%/h



ORDER INFORMATION

Type	Remarks	Warranty (hrs)	Part No.
High-Performance Lamps (200 - 250 W)			
D 200 F	with cooling jacket	1000	56001671
D 200 F - replacement	replacement lamp for 56001671	1000	56001669
D 200 F-HV	with cooling jacket	1000	45006278
D 200 F-HV - replacement	replacement lamp for 45006278	1000	45006278
D 200 VUV assembly	consists of lamp, vacuum flange, cooling jacket	300	45006010
D 200 VUV - replacement	replacement lamp for 45006010	300	45006127
Vacuum UV Deuterium Lamps (starting at 30 W)			
F03	VUV-lamp for analytical applications, quartz	500	80013064
F05	VUV-lamp for analytical applications, MgF2	500	80017478
J59	VUV-lamp with 0,5 mm aperture diameter	500	80017520
V01	long version, with MgF2 window	500	80017697
V02	long version, with quartz glass window	500	80017699
V03	short version, with MgF2 window	500	80017698
V04	short version, with quartz glass window	500	80017700
V05	as V01, without base, for use in vacuum	500	80020174

Current prices at: www.msscientific.de/deuterium_lamps_pdfpricelist.pdf.