



H20-UVL

VUV Monochromator:

The H20-UVL is a monochromator especially designed for analyzing 100-400 nm (3 to 12.4 eV) Vacuum Ultraviolet (VUV) range when using under vacuum, or 190-400 nm at atmospheric pressure. Its micrometric slits and its worm drive make its scans precise and fast. This short focal length vacuum monochromator is ideal for lighting sample if couple with a VUV light source or for VUV low resolution analysis when equipped with single channel detection.

Based on HORIBA Jobin Yvon's patented technology, the H20-UVL series is built around a single spherical holographic grating aberration corrected. Its 64° deviation angle makes this monochromator perfectly optimized in VUV range.

This simple optical design dramatically reduces astigmatism and results in excellent luminosity and spectral purity, even below 140 nm, where other instruments based on Czerny Turner design loose their efficiency because of the number of internal reflections.

APPLICATIONS:

- **Transmission-Reflection measurements**
- **UV tunable filter/Light source**
- **Laser Harmonic Filter**
- **Quality control in VUV**

Specifications:

Optical design	Spherical Type IV (single optic)
Focal length	200 mm
Aperture	f/4.2
Grating density	1200 gr/mm
Optic coating	MgF2 optimized at 121 nm
Deviation angle	64°
Dispersion	3.6 nm/mm at 100 nm
Drive	Fast worm drive
Minimum step	0.06 nm
Speed	400 nm/s
Accuracy	+/- 0.2 nm or +/-0.06 nm (*)
Repeatability	+/-0.06 nm
Resolution	Better than 0.5 nm (**)
High Vacuum	10 ⁻⁵ mbar (***)
Pumping flange	DN40 KF
Entrance/exit port	Micrometric slits (10 um to 2 mm)
Entrance/exit flange	DN25 KF
PC interface	USB2

Options:

Ultra High vacuum	10 ⁻⁹ mbar
Slit height reducers	2, 4, 6 mm diameter

(*) using our software drive correction loaded in the firmware improves the accuracy of the monochromator

(**) using 10 micron slit and 2 mm slit height on 121 nm line and f/4.2 full aperture

(***) H20-UVL requires pump and gauge not included in these packages



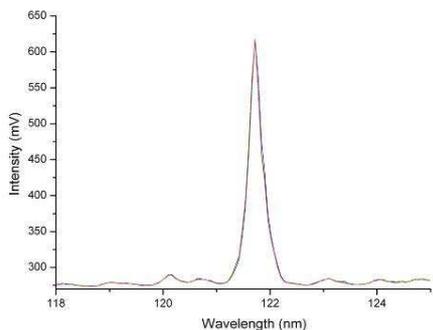
H20-UVL Monochromator

Features

- Single Grating design
- Type IV Grating
- MgF2 coating UV optimized
- Low Astigmatism level
- High Vacuum compatible
- Automate drive
- Build-in USB2 interfaces
- HJY Slit Attachment

Benefits

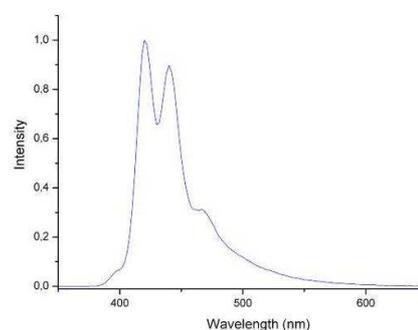
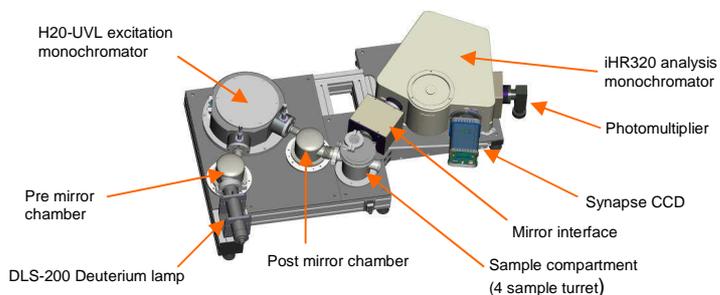
- Optimized for throughput
- Minimized aberrations
- Better efficiency in VUV range
- High S/N ratio measurements
- 10⁻⁵ mbar or optional 10⁻⁹ mbar
- Fast and Easy to operate
- No additional controller. Easily programmable with SDK.
- Compatible with all HJY accessories



Aperture effect on 121.5 nm He line acquired with PMT detector:
Using an f/6 aperture instead of the specified f/4.2, improves the resolution of the monochromator. The measured resolution is here: $R=0.28\text{nm}$



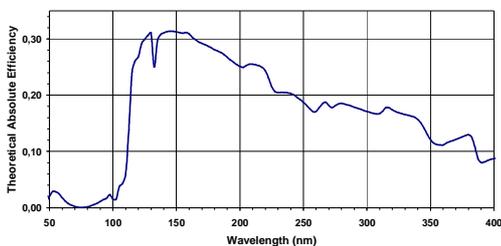
H20-UVL used in a VUV fluorescence setup



Anthracene spectrum obtained with Deuterium/H20-UVL tunable light source excitation set at 160 nm

Fluorescence instrument based on H20-UVL and iHR320

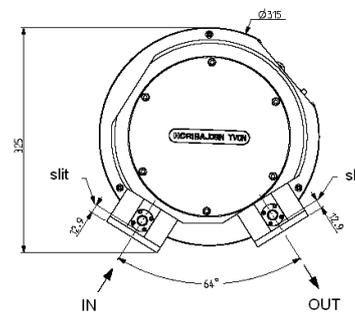
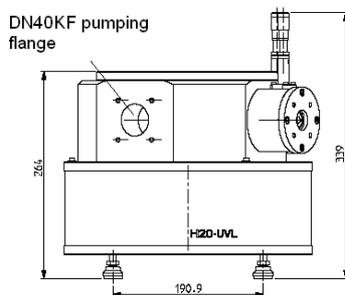
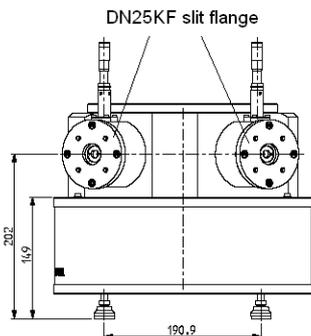
522 00 250 : 1200 gr/mm with Al+MgF2 coating



Wavelength (nm)	Dispersion (nm/mm)
120	3.6
200	3.4
300	3.2

Theoretical efficiency of the H20-UVL grating

Variation of the dispersion with wavelengths



Weight 27kg

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