

Variable Groove Depth Grating The Tuneable Blaze Grating

Since the introduction in 1975 of the patented Toroidal Grating and its associated TGM Monochromator, HORIBA Jobin Yvon has been at the forefront of Synchrotron diffraction grating technology. Nowadays HORIBA Jobin Yvon VUV diffraction gratings equip synchrotron beamlines all over the world providing high performances and reliability. Today the new generation of Synchrotron storage rings exhibits low divergence and source tunability that open new monochromator and beamline optical design perspectives. In collaboration with SOLEIL Synchrotron optical experts, HORIBA Jobin Yvon grating team has developed a new diffraction grating concept: the Variable Groove Depth (VGD). The VGD gratings are optimised for XUV Synchrotron beamline operation and most of the Synchrotron SOLEIL XUV Beamlines are equipped with such gratings.

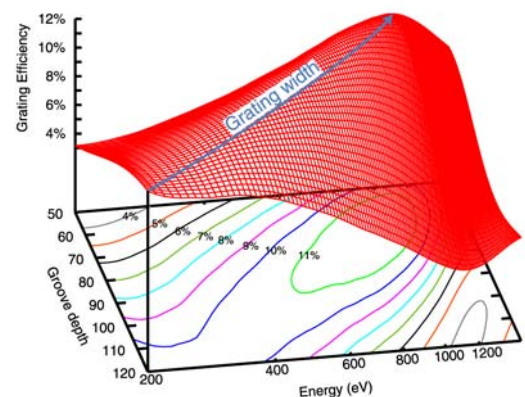


The VGD grating presents a continuous Variable Groove Depth along grating width allowing a continuous adjustment of grating blaze thanks to a simple grating translation along its width. When such blaze adjustment is combined with monochromator scanning movements and narrow beam, the VGD gives unique opportunity to perform ON BLAZE scan or to minimise harmonics contamination over wide spectral range.

ONE VGD grating gives you efficiency properties of several classical gratings

HORIBA Jobin Yvon VGD grating technology is compatible with:

- ❑ Silicon, SiC CVD and Fused Silica high polished blanks
- ❑ Holographic Recording Process
- ❑ Constant, Aberration Corrected, VLS groove distribution
- ❑ Ion Etching Process
- ❑ XUV Reflective Coating



The VGD grating technology is compatible with most of the recent synchrotron beamline designs that provide mm size synchrotron beam onto the grating. Replacing your classical or multi track gratings by a HORIBA Jobin Yvon VGD will open new experimental opportunities with optimised flux performances over your whole beamline spectral range. Contact now your nearest HORIBA Jobin Yvon office or representative to learn more about VGD grating and define with us how the VGD gratings can improve your experimental conditions.

Gratings & OEM Division

Typical VGD grating technical specifications:

Shape:	Plane
Dimension:	40 x 120 x 40 mm ³
Ruled Area:	35 x 110 mm ²
Material:	Non Oriented Silicon Crystal
Micro-roughness:	less than 0.5 nm (rms)
Slope error:	down to 0.5 μ rad (rms)
Groove distribution:	Constant or Variable Line Spaced law holographically recorded
Land to Groove ratio:	0.55 within \pm 15%
Groove depth variation (h):	$h_{\max} = 3 \times h_{\min}$ over 35 mm grating width
Coatings:	Au, Pt or Ni

HORIBA Jobin Yvon: Metrology Capabilities

HORIBA Jobin Yvon places considerable emphasis on testing of components at every stage of the manufacturing process. Thus, HORIBA Jobin Yvon can analyse errors and apply appropriate corrective actions to the subsequent manufacturing stages. Our metrology encompass, for example: slope errors measurements

using interferometry and Long Trace Profilometry, micro-roughness using Nomarski microscope and interferential microscopes, groove profile analysis using Atomic Force Microscope and Scanning Tunnelling Microscope, reflectometry and grating efficiency measurement from IR to EUV.

HORIBA Jobin Yvon: your resource for VUV Instrumentation

Since our formation in 1819 by JB SOLEIL, HORIBA Jobin Yvon has been at the forefront of optical and spectroscopic instrumentation. The company is committed to the design and manufacture of diffraction gratings, high quality mirrors, VUV monos and synchrotron beamline components. If you cannot find in HORIBA Jobin Yvon literatures or brochures the ins-

trument that match your requirements we would be please to review with you the possibility of making one on custom basis. Please contact one of the HORIBA Jobin Yvon offices or representatives for further information on our products and/or consultation with our VUV instrumentation and optical specialists.

We are pleased to work with you to find a suitable solution to your requirements.

In North America:

HORIBA Jobin Yvon Inc.
3880 Park Avenue
Edison, New Jersey
08820, USA
Tel: +1 732 494 8660 ext. 328
Fax: +1 732 548 9725
Email: custom_gratings@jobinyvon.com

In France:

HORIBA Jobin Yvon
16-18, rue du Canal
91165 Longjumeau cedex
Tel: +33 1/64 54 13 00
Fax: +33 1/69 09 93 19
Email: info@jobinyvon.fr

Others areas:

China, Beijing: +86 (0) 10 6849 2216
China, Shanghai: +86 (0) 21 6447 9785
Germany: +49 (0) 89 46 23 17 0
Italy: +39 0 2 57 60 30 50
Japan: +81 (0) 3 3861 8234
U.K.: +44 (0) 20 8204 8142