



**Scientific diffraction gratings / Custom gratings**

**Ruled plane gratings**

# Commitment to quality



HORIBA Jobin Yvon offers complete customer service, including expert technical advice for optimizing system configurations to meet customers' needs.

HORIBA Jobin Yvon is ISO 9001:2000 certified, and our well-staffed departments are committed to customer satisfaction and product quality.

# Ruled plane gratings

Ruled plane gratings

HORIBA Jobin Yvon has produced a wide range of ruled master gratings from which we manufacture high precision replicas.

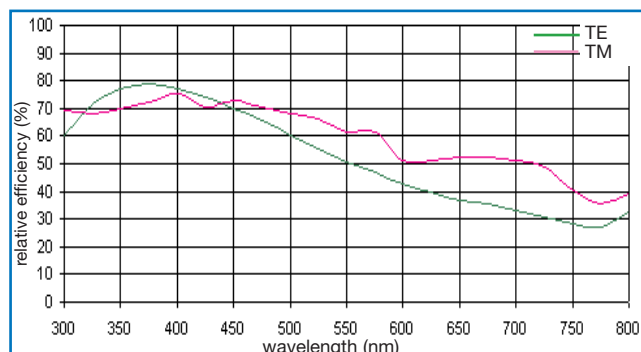
Dimensions of our high-precision replica gratings typically range from 25x25 mm up to 120x140 mm.

On page 35, we indicate the blaze angle ( $\alpha$ ) which is given by the formula:  
 $2a \sin \alpha = k \lambda_B$ , where  $a$  is the groove spacing,  $k$  is the diffraction order (usually  $k=1$ ) and  $\lambda_B$  is the blaze wavelength (in Littrow configuration).

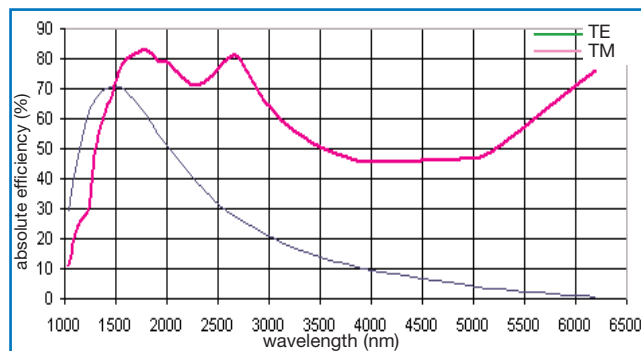
## Typical efficiency performance of ruled plane gratings

### Typical ruled plane grating efficiencies

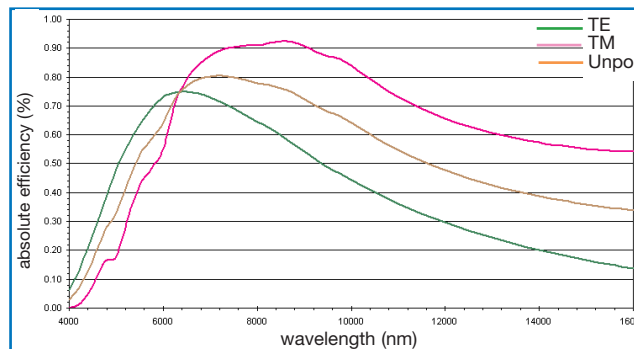
#### Efficiency curves



510 12; 600 l/mm; blaze 400 nm



510 21; 300 l/mm; blaze 2 μm



510 37; 75 l/mm; 5-16 μm

#### NOTE:

These efficiency curves are absolute theoretical efficiencies, calculated using rigorous electromagnetic theory, taking into account the true groove profiles of manufactured gratings measured with an atomic force microscope (AFM). These curves are for reference only and do not indicate grating specifications.

## Custom master ruled gratings for CO<sub>2</sub> lasers

HORIBA Jobin Yvon offers master ruled plane gratings optimized at 10.6 micron for CO<sub>2</sub> lasers.

- ruling density is 150 l/mm
- coating: gold
- substrate material: stainless steel
- substrate dimension: 25 mm diameter on 25x25 mm
- absolute efficiency: higher than 95% for TM polarization over 9 to 11 μm wavelength range

Ruled plane gratings are replicated from our extensive inventory of high-quality master gratings. New gratings are frequently added; please inquire for your specific needs.

## Grating size table

size code	blank size
020	25x25x8
050	34x34x10
070	30x40x10
080	44x44x10
090	40x60x10
330	50x50x6
110	58x58x10
120	68x68x9
140	76x76x16
150	90x90x16
160	80x110x16
180	110x110x16
190	110x135x25
200	120x140x20

Ruled area: extends to within a 2-4 mm border around the grating edge

Standard substrate material is Pyrex; on request, substrates including fused silica, Zerodur, ULE, metals, or other materials can be considered.

Standard coating is aluminium. On request, AlMgF2, gold or platinum are also available for an additional cost.

groove density (l/mm)	blaze wavelength	blaze angle	max replica dimension (mm)	reference
1800	330 nm	17°27'	90x90x16	510 01
1800	500 nm	26°45'	90x90x16	510 02
1800	630 nm	34°32'	68x68x9	510 03
1200	250 nm	8°38'	58x58x10	510 04
1200	330 nm	11°25'	58x58x10	510 05
1200	400 nm	13°53'	58x58x10	510 06
1200	500 nm	17°27'	58x58x10	510 07
1200	630 nm	22°12'	58x58x10	510 08
1200	750 nm	26°45'	58x58x10	510 09
1200	1 µm	36°52'	58x58x10	510 10
900	350 nm	9°00'	90x90x16	510 91
900	550 nm	14°30'	58x58x10	510 93
900	1.5 µm	42°27'	76x76x16	510 97
600	300 nm	5°10'	110x110x16	510 11
600	400 nm	6°54'	110x135x25	510 12
600	500 nm	8°38'	120x140x20	510 13
600	750 nm	13°00'	90x90x16	510 14
600	1 µm	17°27'	120x140x20	510 15
600	1.5 µm	26°45'	110x110x16	510 16
600	2 µm	36°52'	110x110x16	510 17
300	250 nm	2°09'	110x110x16	510 50
300	500 nm	4°18'	120x140x20	510 18
300	600 nm	5°10'	120x140x20	510 19
300	1 µm	8°38'	110x110x16	510 20
300	2 µm	17°27'	110x110x16	510 21
300	3 µm	26°45'	120x140x20	510 22
300	4 µm	36°52'	120x140x20	510 23
150	500 nm	2°09'	110x110x16	510 49
150	1.2 µm	5°10'	110x110x16	510 24
150	2 µm	8°38'	110x110x16	510 25
150	4 µm	17°27'	120x140x20	510 26
150	5 µm	22°01'	120x140x20	510 27
150	6 µm	26°45'	120x140x20	510 28
150	8 µm	36°52'	110x110x16	510 29
120	2.5 µm	8°39'	110x110x16	510 30
120	5 µm	17°27'	120x140x20	510 31
120	7.5 µm	26°45'	120x140x20	510 32
100	450 nm	1°17'	110x110x16	510 48
100	3 µm	8°38'	110x110x16	510 33
100	6 µm	17°27'	120x140x20	510 34
100	9 µm	26°45'	120x140x20	510 35
75	4 µm	8°38'	110x110x16	510 36
75	8 µm	17°27'	110x110x16	510 37
75	12 µm	26°45'	110x110x16	510 38
60	10 µm	17°27'	90x90x16	510 39
60	15 µm	26°45'	110x110x16	510 40
50	12 µm	17°27'	110x110x16	510 42
50	18 µm	26°45'	110x110x16	510 43
50	24 µm	36°52'	110x110x16	510 44
40	22.5 µm	26°45'	90x90x16	510 45
30	30 µm	26°45'	90x90x16	510 46
20	45 µm	26°45'	76x76x16	510 47

# FAX FORM

For more information or custom grating / mirror quotations, please complete the corresponding request info on our web site: [www.jobinyvon.com](http://www.jobinyvon.com) or send this completed form by fax.

The personal details that we use to provide or promote our products and services (for example your name and telephone number), will NOT be passed to ANY organization beyond the HORIBA Group, its Subsidiary or Associate Companies, Agents or Distributors to be used for marketing purposes.

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Title: .....	Organization: .....
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State/Province: .....	.....
Country: .....	Postal Code: .....
(USA please include Zip)	
Telephone: .....	E-Mail: .....
Fax: .....	

Please keep me informed with up-to-date information.

## Your Interest

My interest is:

- Information only       Possible purchase       I have funding       I am applying for funds

I intend to purchase

- Now!     Within 3 months     Within 6 months     Within 12 months     More than 12 months

Salesperson please call

## Please Send Product Information For:

Gratings & OEM

- Diffraction Gratings  
 Pulse Compression Gratings  
 OEM Spectrometers  
 Imaging CCDs  
 Multi Channel Imaging

Vacuum UV

- Monochromators & Spectrographs  
 Mirrors  
 Gratings

## My Application is:

We would be interested in learning more about your application. Please give details below:

.....  
.....

## Comments

Please include any comments or further information about your requirement below:

.....  
.....

**USA - HORIBA Jobin Yvon Inc**

Tel: +1-732-494-8660  
Fax: +1-732-549-5125  
Email: info@jobinyvon.net

**France - HORIBA Jobin Yvon SAS**

Tel: +33 (0) 1 64 54 13 00  
Fax: +33 (0) 1 69 09 07 21  
Email: info@jobinyvon.fr

**Japan - HORIBA Ltd**

Tel: +81 (0) 3 38618231  
Fax: +81 (0) 3 38618259  
Email: info@horiba.co.jp

**Germany - HORIBA Jobin Yvon GmbH**

Tel: +49 (0) 89 46 23 17-0  
Fax: +49 (0) 89 46 23 17-99  
Email: info@jobinyvon.de

**Italy - HORIBA Jobin Yvon SRL**

Tel: +39 0 2 57603050  
Fax: +39 0 2 57600876  
Email: info@jobinyvon.it

**UK - HORIBA Jobin Yvon Ltd**

Tel: +44 (0) 20 8204 8142  
Fax: +44 (0) 20 8204 6142  
Email: info@jobinyvon.co.uk

**China - HORIBA Jobin Yvon SAS**

**Beijing representative office**

Tel: +86 (0) 10 8567 9966  
Fax: +86 (0) 10 8567 9066

**Shanghai representative office**

Tel: +86 (0) 21 3222 1818  
Fax: +86 (0) 21 6289 5553  
Email: jjh@jobinyvon.cn

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## COMPANY PROFILE

HORIBA Jobin Yvon is one of the world's largest manufacturers of analytical and spectroscopic systems and components and we are committed to serving our customers with superior products and technical support.

Established in 1819, Jobin Yvon is part of the HORIBA Group which employs more than 4,500 people worldwide, with annual sales in excess of \$900,000,000.

HORIBA Jobin Yvon, Sofie, Dilor, Spex and IBH are some of our well known and respected brand names.

**HORIBA**JOBIN YVON

USA: HORIBA Jobin Yvon Inc., 3880 Park Avenue, Edison, NJ 08820-3012, Toll-Free: +1-866-jobinyvon  
Tel: +1-732-494-8660 Ext 232, Fax: +1-732-549-5125, E-mail: oem@jobinyvon.com, www.jobinyvon.com  
France: HORIBA Jobin Yvon S.A.S., 16-18, rue du Canal, 91165 Longjumeau Cedex,  
Tel: +33(0)164541338, Fax: +33(0)169099319, E-mail: oem.sales@jobinyvon.fr, www.jobinyvon.com  
Japan: HORIBA Ltd., JY Optical Sales Dept, Higashi-Kanda, Daiji Building, 1-7-8 Higashi-Kanda  
Chiyoda-ku, Tokyo 101-0031, Tel: +81 (0) 3 3861 8231, www.jyhoriba.jp  
Germany: +49 (0) 89 462317-0 Italy: +39 0 2 57603050 UK: +44 (0) 20 8204 8142  
China: +86 (0) 10 8567 9966

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