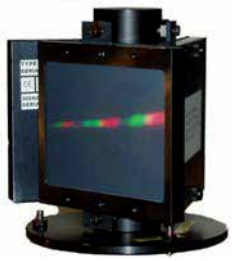
Diffraction gratings



LOT offers around 200 types of diffraction gratings.

The following table lists the most popular types which are likely to suit the majority of applications.

Lines per mm [l/mm]	Blaze wavelength [nm]	Type	Recommended wavelength range	Theoretical resolution (nm) at 1 mm slit	
				for MSH 150	for MSH 300
High-resolution UV gratings					
2400	250	holographic	190 nm - 500 nm	3	1.5
1800	250	holographic	200 nm - 600 nm	4	2
1800	500	ruled	275 nm - 900 nm	4	2
1200 l/mm gratings					
1200	250	holographic	190 nm - 500 nm	5	2.5
1200	300	ruled	200 nm - 900 nm	5	2.5
1200	500	ruled	300 nm - 1.1 µm	5	2.5
1200	750	ruled	450 nm - 1.2 µm	5	2.5
830 l/mm gratings					
830	1200	ruled	750 nm - 1.8 µm	8	4
600 l/mm gratings					
600	300	ruled	220 nm - 700 nm	10	5
600	500	ruled	300 nm - 1.2 µm	10	5
600	750	ruled	450 nm - 1.4 µm	10	5
600	1000	ruled	600 nm - 2.2 µm	10	5
600	1200	ruled	800 nm - 2.4 µm	10	5
600	1600	ruled	900 nm - 2.5 µm	10	5
Extended IR gratings					
300	3000	ruled	1.7 µm - 5.5 µm	20	10
150	4000	ruled	2.4 µm - 8.0 mµm	40	20
100	9000	ruled	4.5 µm - 16.2 µm	60	30
75	12000	ruled	6 µm - 21 µm	80	40
50	18000	ruled	9 µm - 25 µm	100	50

LOT part numbering system for gratings:

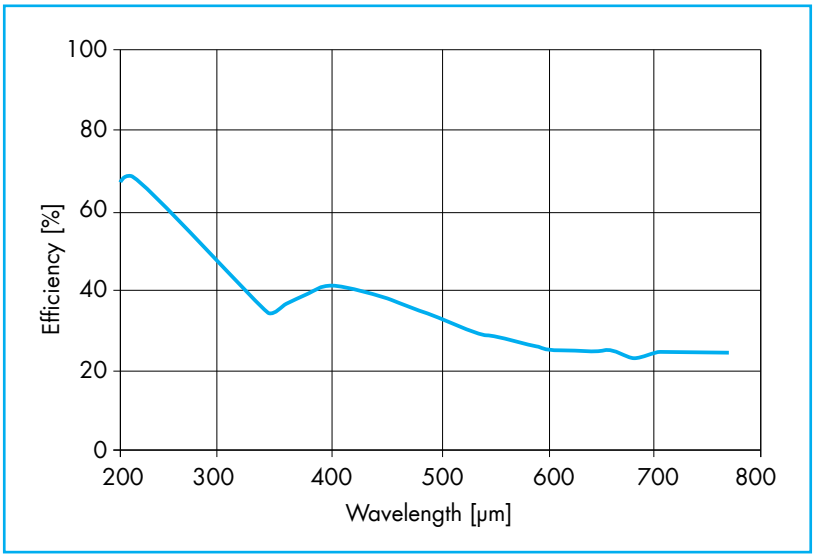
MSG-x-yyyy-zzz

- x: T= MSH 300, S= MSH150
- yyyy: Lines per mm
- zzz: Blaze wavelength (nm)

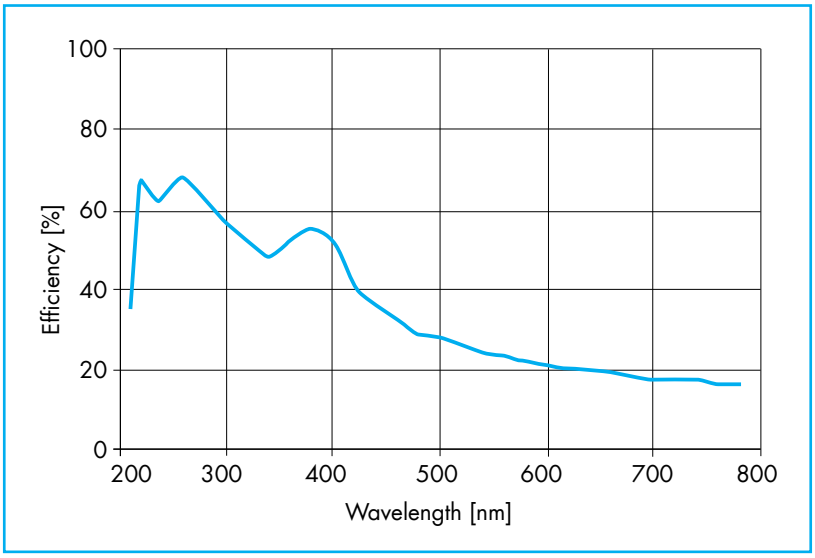
For grating 1200l/mm, blaze at 500 nm for use in MSH 300 and in MSH 300F
300 mm focal length monochromator:
For example: Part number MSG-T-1200-500

High-resolution UV gratings

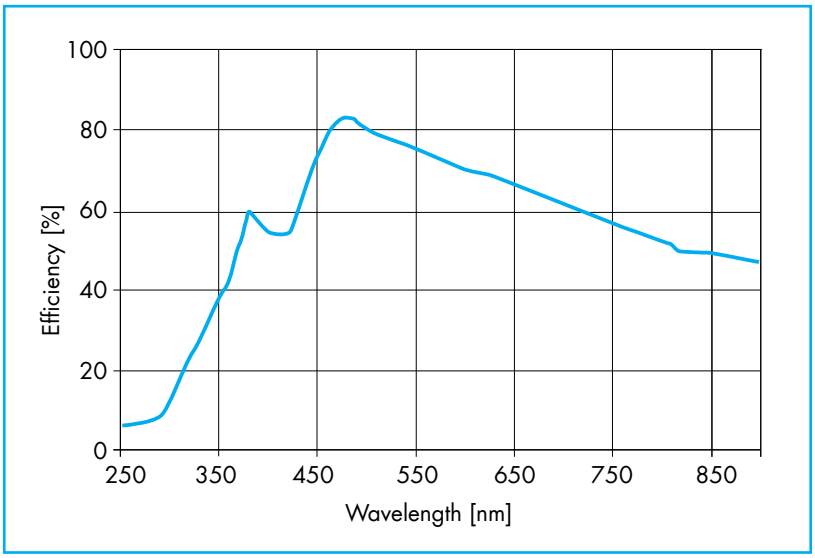
Ordering information MSG-T-2400-250 / MSG-S-2400-250		
Lines per mm		2400
Blaze wavelength		250 nm
Type		holographic
Recommended wavelength range		190 nm - 500 nm
Theoretical resolution at 1 mm slit	for MSH 150 (S)	3
	for MSH 300 (T)	1.5



Ordering information MSG-T-1800-250 / MSG-S-1800-250		
Lines per mm		1800 mm
Blaze wavelength		250 nm
Type		holographic
Recommended wavelength range		200 nm - 600 nm
Theoretical resolution at 1 mm slit	for MSH 150 (S)	4
	for MSH 300 (T)	2

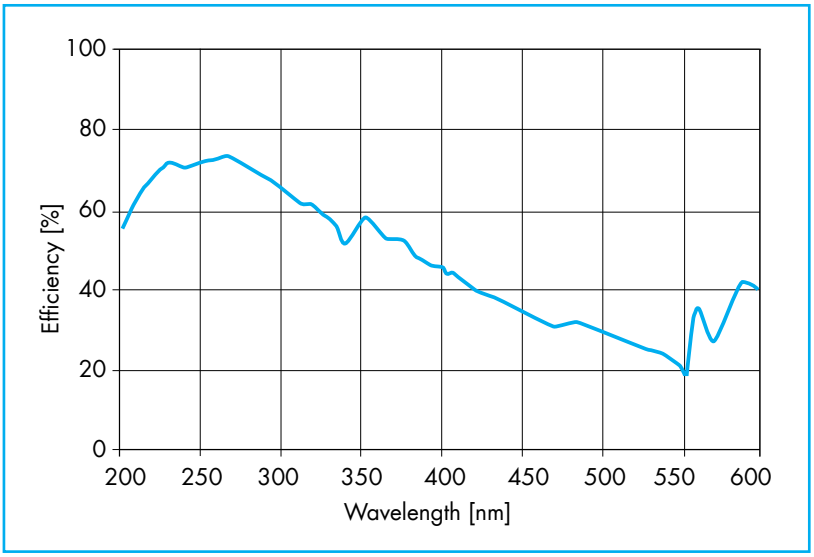


Ordering information MSG-T-1800-500 / MSG-S-1800-500		
Lines per mm		1800 mm
Blaze wavelength		500 nm
Type		ruled
Recommended wavelength range		270 nm - 900 nm
Theoretical resolution at 1 mm slit	for MSH 150 (S)	4
	for MSH 300 (T)	2

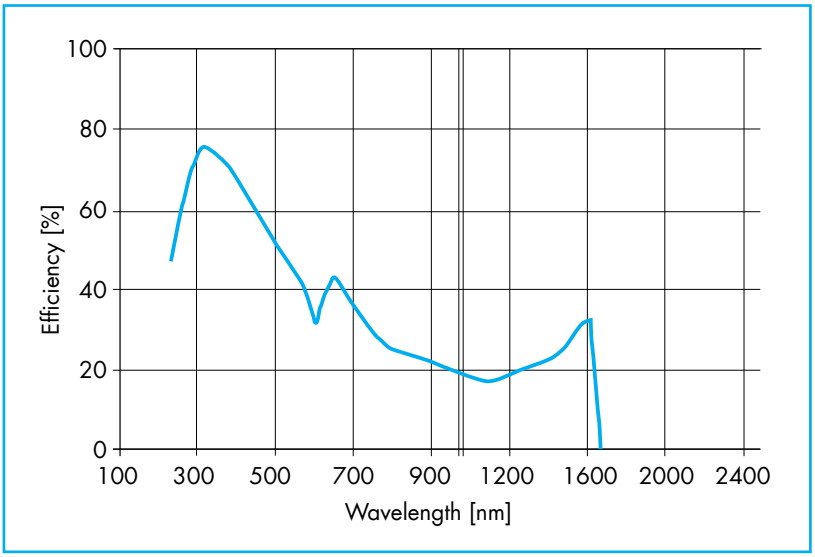


1200 l/mm gratings

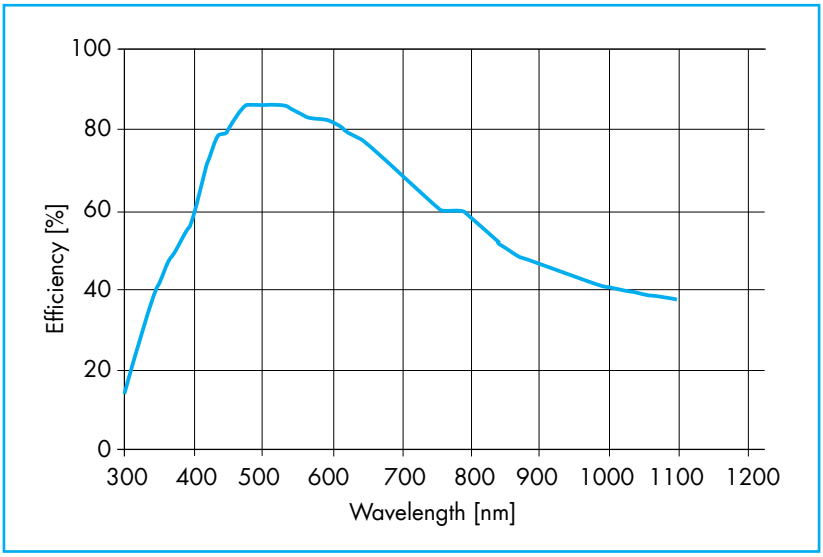
Ordering information MSG-T-1200-250 / MSG-S-1200-250		
Lines per mm		1200 mm
Blaze wavelength		250 nm
Type		holographic
Recommended wavelength range		190 nm - 500 nm
Theoretical resolution at 1 mm slit	for MSH 150 (S)	5
	for MSH 300 (T)	2.5



Ordering information MSG-T-1200-300 / MSG-S-1200-300		
Lines per mm		1200 mm
Blaze wavelength		300 nm
Type		ruled
Recommended wavelength range		200 nm - 900 nm
Theoretical resolution at 1 mm slit	for MSH 150 (S)	5
	for MSH 300 (T)	2.5



Ordering information MSG-T-1200-500 / MSG-S-1200-500		
Lines per mm		1200 mm
Blaze wavelength		500 nm
Type		ruled
Recommended wavelength range		300 nm - 1.1 µm
Theoretical resolution at 1 mm slit	for MSH 150 (S)	5
	for MSH 300 (T)	2.5



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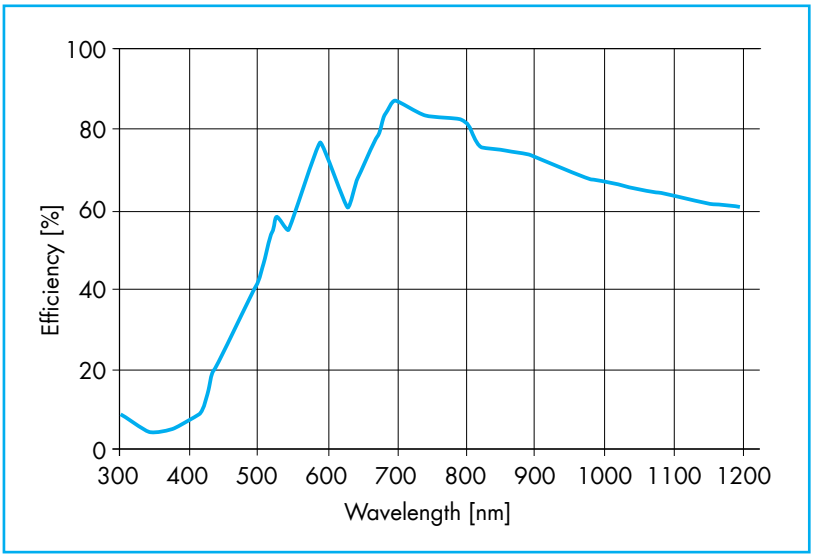
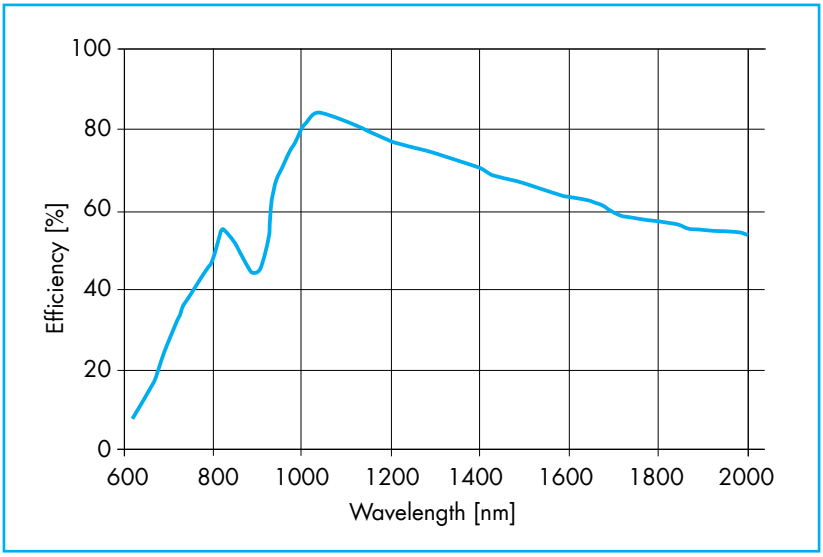
1200 l/mm grating and 830 l/mm grating

Ordering information MSG-T-1200-750 / MSG-S-1200-750		
Lines per mm		1200 mm
Blaze wavelength		750 nm
Type		ruled
Recommended wavelength range		450 nm - 1200 nm
Theoretical resolution at 1 mm slit	for MSH 150 (S)	5
	for MSH 300 (T)	2.5



Ordering information MSG-T-830-1200 / MSG-S-830-1200		
Lines per mm		830 mm
Blaze wavelength		1200 nm
Type		ruled
Recommended wavelength range		750 nm - 1.8 µm
Theoretical resolution at 1 mm slit	for MSH 150 (S)	8
	for MSH 300 (T)	4



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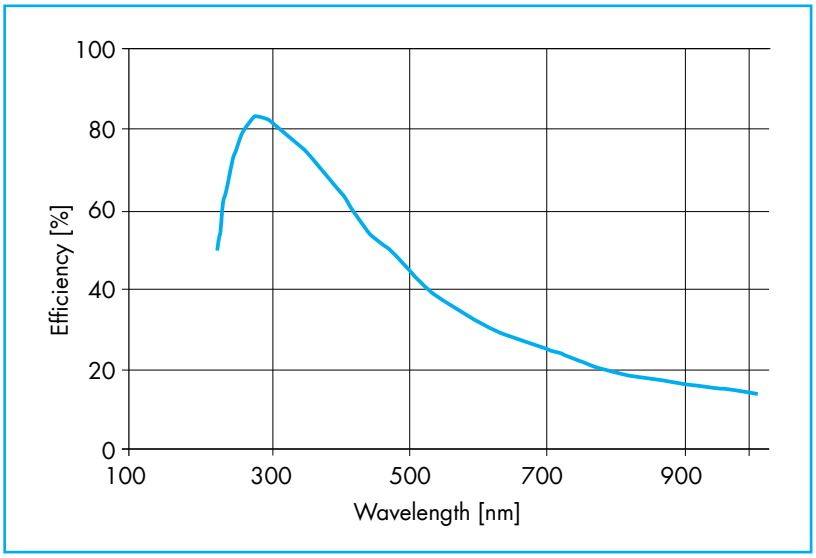
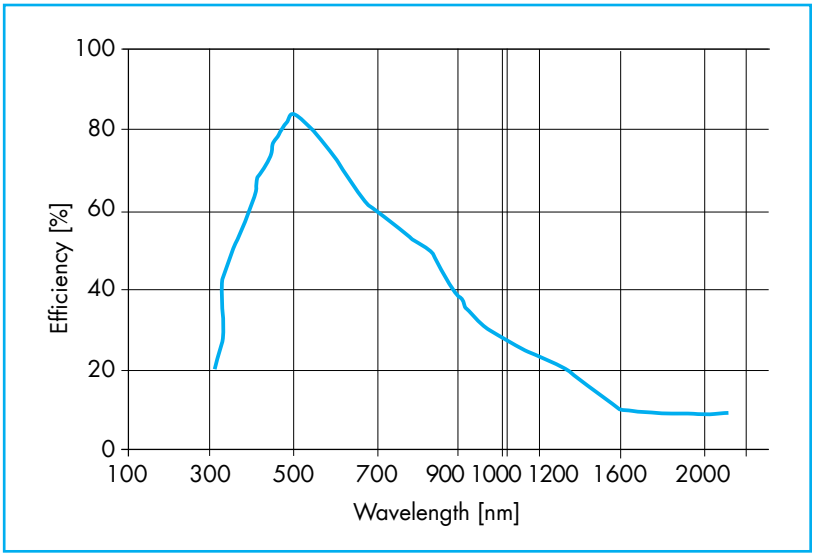
600 l/mm gratings

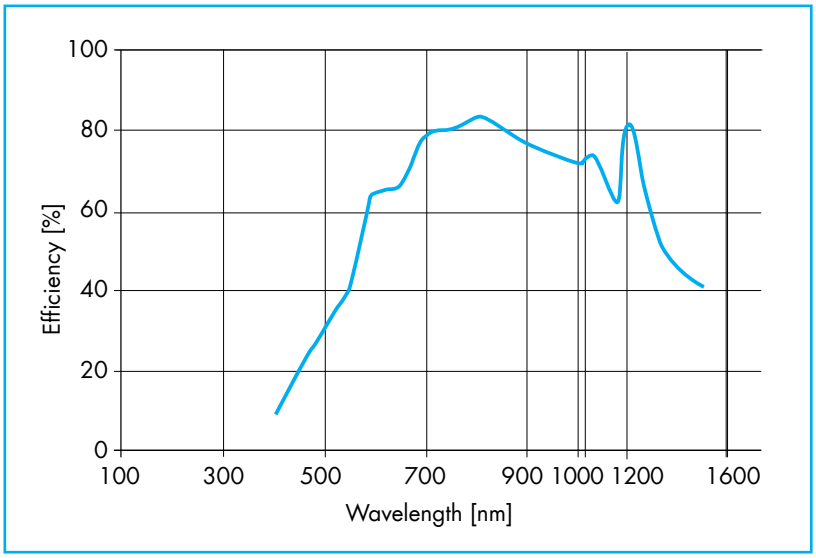
Ordering information MSG-T-600-300 / MSG-S-600-300		
Lines per mm		600 mm
Blaze wavelength		300 nm
Type		ruled
Recommended wavelength range		220 nm - 700 nm
Theoretical resolution at 1 mm slit	for MSH 150 (S)	10
	for MSH 300 (T)	5



Ordering information MSG-T-600-500 / MSG-S-600-500		
Lines per mm		600 mm
Blaze wavelength		500 nm
Type		ruled
Recommended wavelength range		300 nmm - 1.2 µm
Theoretical resolution at 1 mm slit	for MSH 150 (S)	10
	for MSH 300 (T)	5



Ordering information MSG-T-600-750 / MSG-S-600-750		
Lines per mm		600 mm
Blaze wavelength		750 nm
Type		ruled
Recommended wavelength range		450 nm - 1.4 µm
Theoretical resolution at 1 mm slit	for MSH 150 (S)	10
	for MSH 300 (T)	5



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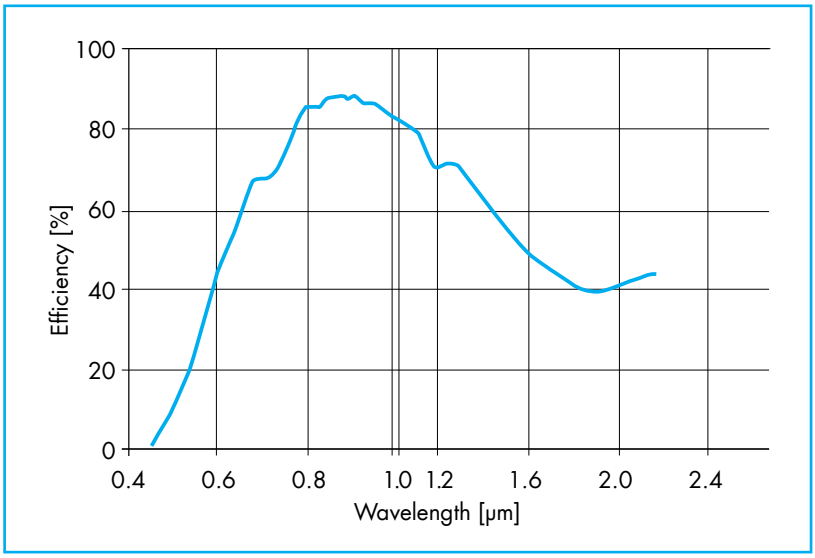
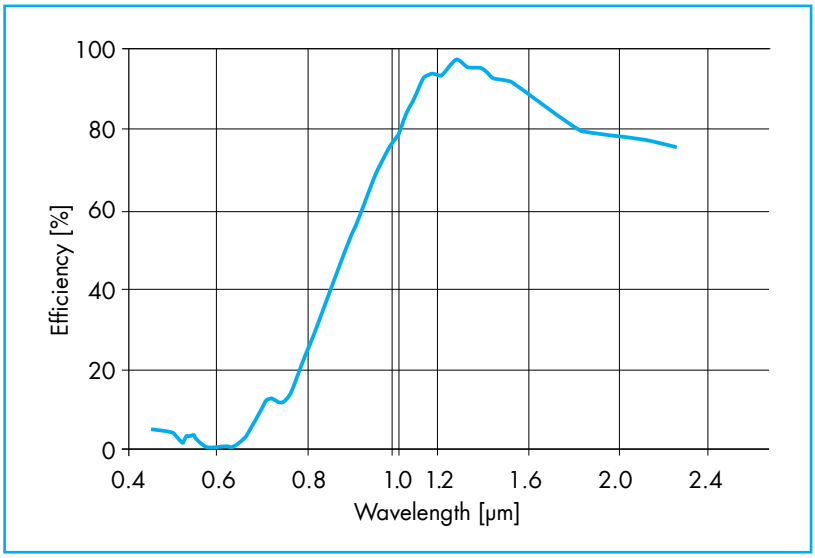
600 l/mm gratings

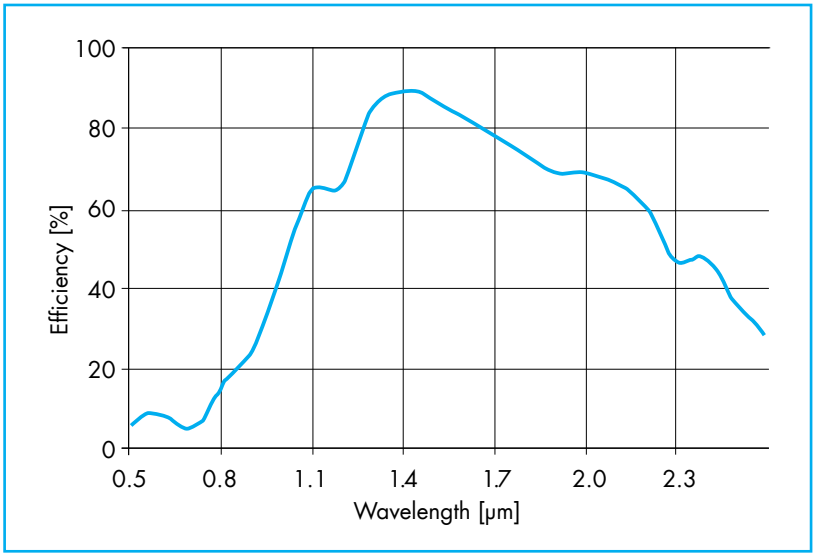
Ordering information MSG-T-600-1000 / MSG-S-600-1000		
Lines per mm		600 mm
Blaze wavelength		1000 nm
Type		ruled
Recommended wavelength range		0.6 µm - 2.2 µm
Theoretical resolution at 1 mm slit	for MSH 150 (S)	10
	for MSH 300 (T)	5



Ordering information MSG-T-600-1200 / MSG-S-600-1200		
Lines per mm		600 mm
Blaze wavelength		1200 nm
Type		ruled
Recommended wavelength range		0.8 µm - 2.4 µm
Theoretical resolution at 1 mm slit	for MSH 150 (S)	10
	for MSH 300 (T)	5

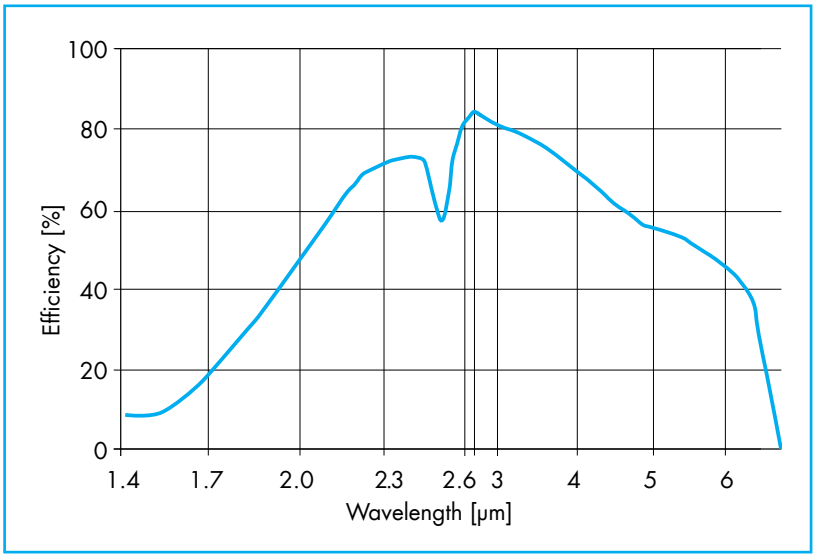


Ordering information MSG-T-600-1600 / MSG-S-600-1600		
Lines per mm		600 mm
Blaze wavelength		1600 nm
Type		ruled
Recommended wavelength range		0.9 µm - 2.5 µm
Theoretical resolution at 1 mm slit	for MSH 150 (S)	10
	for MSH 300 (T)	5

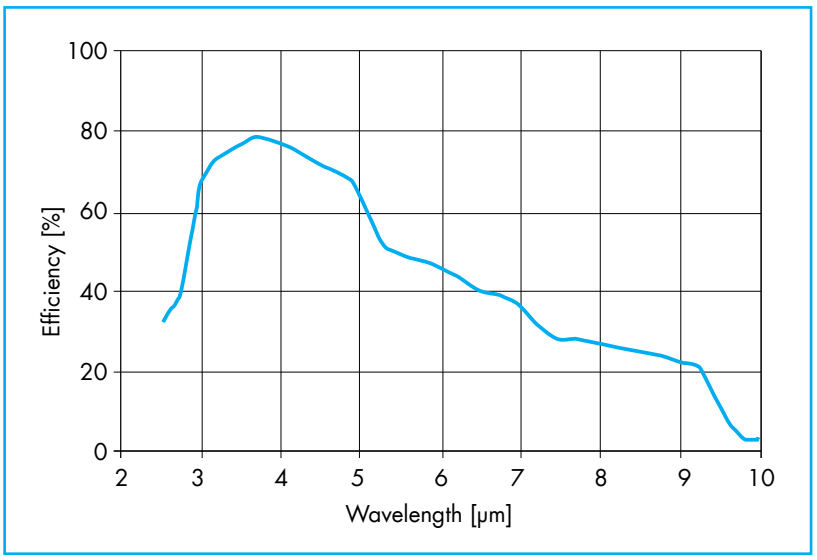


Extended IR gratings

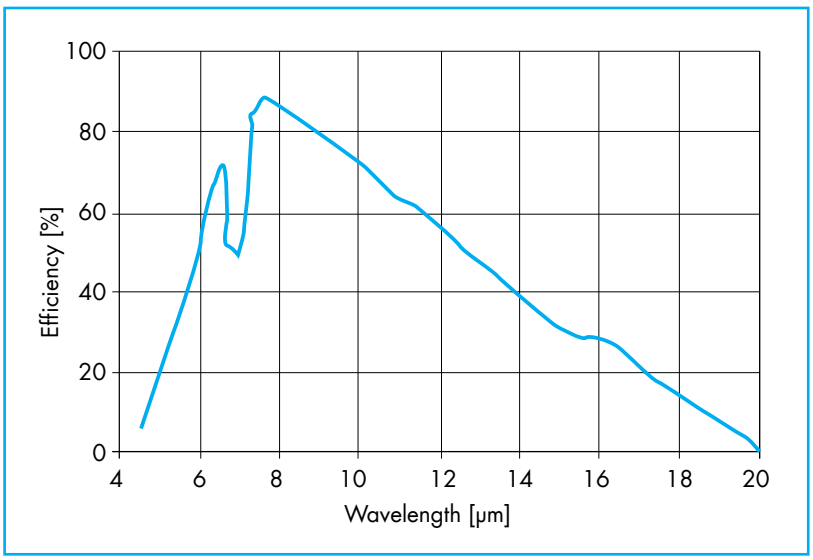
Ordering information MSG-T-300-3000 / MSG-S-300-3000		
Lines per mm		300 mm
Blaze wavelength		3000 nm
Type		ruled
Recommended wavelength range		1.7 µm - 5.5 µm
Theoretical resolution at 1 mm slit	for MSH 150 (S)	20
	for MSH 300 (T)	10



Ordering information MSG-T-150-4000 / MSG-S-150-4000		
Lines per mm		150 mm
Blaze wavelength		4000 nm
Type		ruled
Recommended wavelength range		2.4 µm - 8.0 µm
Theoretical resolution at 1 mm slit	for MSH 150 (S)	40
	for MSH 300 (T)	20



Ordering information MSG-T-100-9000 / MSG-S-100-9000		
Lines per mm		100 mm
Blaze wavelength		9000 nm
Type		ruled
Recommended wavelength range		4.5 µm - 16.2 µm
Theoretical resolution at 1 mm slit	for MSH 150 (S)	60
	for MSH 300 (T)	30



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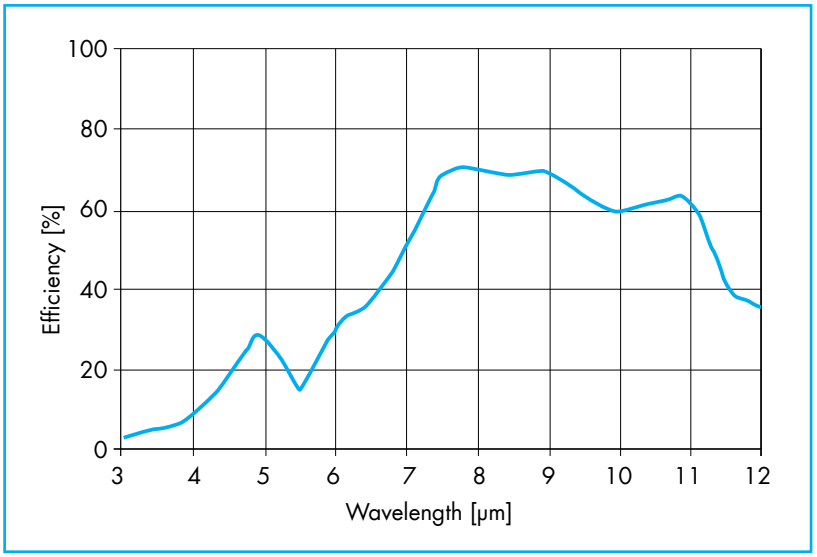
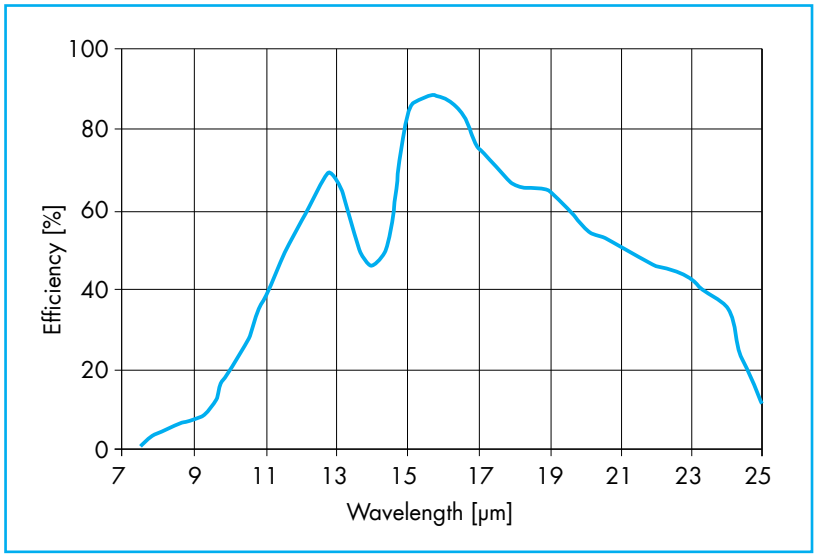
Extended IR gratings

Ordering information MSG-T-75-12000 / MSG-S-75-12000		
Lines per mm		75 mm
Blaze wavelength		12000 nm
Type		ruled
Recommended wavelength range		6 µm - 21 µm
Theoretical resolution at 1 mm slit	for MSH 150 (S)	80
	for MSH 300 (T)	40



Ordering information MSG-T-50-18000 / MSG-S-50-18000		
Lines per mm		50 mm
Blaze wavelength		18000 nm
Type		ruled
Recommended wavelength range		9 µm - 25 µm
Theoretical resolution at 1 mm slit	for MSH 150 (S)	100
	for MSH 300 (T)	50



Note: The efficiency curves above were measured in an in-plane near Littrow configuration. Efficiency curves are only representative: actual efficiency may vary significantly depending on used geometry and measurement technique.