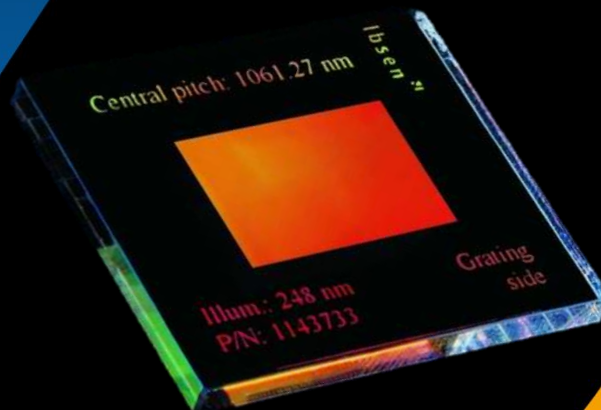


***Improving manufacturability of gratings in fiber and waveguide based components through accuracy, characterization and on-mask identification***

Holographically produced Ibsen Phase masks offer period accuracy down to  $\pm 0.1$  Ångström and enhance customer manufacturing performance and yield. Clear on-mask identification leads to straightforward handling in manufacturing and consequently improves operational costs for customers. A flexible specification to customer requirements and optional extensive characterization further enhances manufacturability of grating based components.



## **FBG Phase Mask**

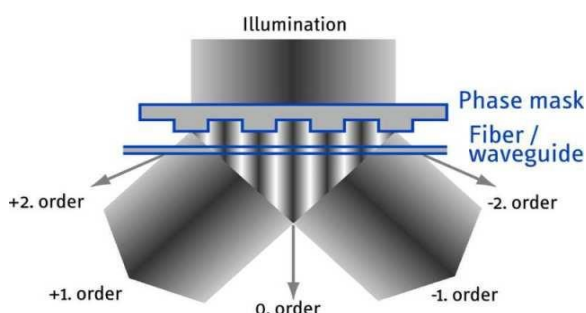
**+1/-1 order principle**

# FBG Phase Mask

## +1/-1 order principle

Features
Holographically produced in 100% cleanroom environment
Period accuracy and uniformity of +/- 0.01 nm
Continuous linear chirp
Low zero order
Low defect count
Clear on-mask identification

Applications
ITU filters and add/drop components
Fiber lasers
LD-stabilizers
Gain Flattening Filters
Dispersion Compensation
Sensors



### The principle behind +1/-1 order Phase mask

The +1/-1 order Phase mask is optimized to diffract light equally and maximally into the plus first and minus first orders. Self-interference between the two orders

creates an interference pattern with half the Phase mask period. Ibsen manufactures a series of +1/-1 order Phase masks with highly suppressed zero order.

Product Range and Specifications		
Grating periods	400 nm – 2500 nm	
Illumination wavelengths	193 nm – 800 nm	
Material	UV-grade Fused Silica	
Period accuracy	+/- 0.01 nm	
Period uniformity	+/- 0.01 nm	
Available chirp rates	0.01 nm/cm – 30 nm/cm*	
Guarenteed zero order suppression	<4%* (Lower spec. Optinal)	
Typical zero order suppression	0 – 2%*	
Zero order uniformity	Grating length 10 mm	+/- 0.5%*
	Grating length 25 mm	+/- 0.75%*
	Grating length 50 mm	+/- 1%*

### Options

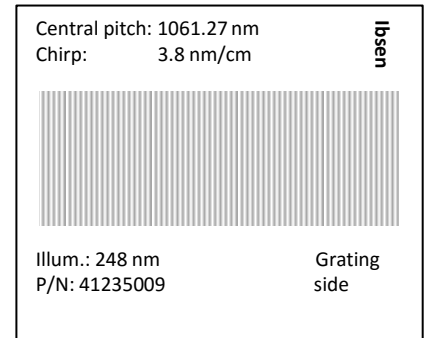
- Custom specifications
- Various characterization reports available

\* Not applicable to all configurations across the product range

# FBG Phase Mask

## +1/-1 order principle

Standard grating and substrate sizes	
Grating size	Substrate size
10 mm x 10 mm	30 mm x 25 mm x 2 mm
25 mm x 10 mm	30 mm x 25 mm x 2 mm
50 mm x 10 mm	3" x 3" x 2 mm
Larger grating areas	Request for quote
Sawing to custom sizes	Optional



## Ibsen offers cleaning service

Effective cleaning service can optionally include extensive cleanliness evaluation and diagnostic inspection.

Specifications are subject to change without prior notice.