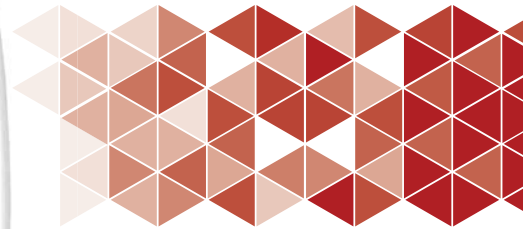


# II-VI

[www.iiviinfrared.com](http://www.iiviinfrared.com)

# 1 $\mu\text{m}$

## HIGH POWER LASER OPTICS



TOLL FREE 888.558.1504 (USA and Canada)  
TEL. 724.352.1504 FAX. 724.352.4980

VOL. JN 15

## Fused Silica Optics

II-VI Infrared, the world leader in laser optics, introduces customized fused silica optics for direct diode and fiber or disk laser applications at powers greater than 1kW. Fused silica aspheres are designed to be diffraction limited and achieve smaller spot sizes than typical spherical lenses. For less sensitive applications, II-VI also manufactures fused silica spherical lenses for added convenience. The availability of fused silica debris shields, mirrors and mounted optics make II-VI Infrared the definitive source for any 1 $\mu$ m requirement. Whether for welding or cutting, II-VI offers low-absorbing, high quality lenses using industry-leading manufacturing resources and superior coating technology.

## Capabilities

- 15-200mm diameter optics
- Custom optical designs (i.e. aspheres, axicons, spherical lenses, etc.) available upon request
- Ion-Beam Sputtered (IBS) coatings available; Ion-Assisted Deposition (IAD) also available



## High Power Grade

- Low-absorbing across larger wavelength band
- Lowest OH content
- Recommended for direct diode laser applications

## Standard Grade

- Low-absorbing from 1030nm-1080nm
- Low OH content
- Recommended for mid-power fiber laser applications

### Manufacturing Capabilities

Diameter/Thickness	+/-50 $\mu$ m
ETV	$\leq$ 10 $\mu$ m
Asphere Power	$\leq$ 2fr at 632.8nm
Asphere Irregularity	$\leq$ 1fr at 632.8nm
Surface Roughness	$\leq$ 3nm RMS
Surface Quality	20/10 or better
Clear Aperture	$\geq$ 90%
Focal Length	$\leq$ 0.1%
Reflectivity	$\leq$ 0.2% per surface 1030nm-1080nm
Coating Absorption	$\leq$ 3ppm/surface on AR

### Mechanical Properties

Density	2.20g/cm <sup>3</sup>
Young's Modulus	70-73 GPa
Poisson's Ratio	0.16-0.17
Knoop Hardness	500-650kg/mm <sup>2</sup>

### Thermal Properties

Thermal Conductivity	1.38W/mK (20°C)
Thermal Expansion	0.58x10 <sup>-6</sup> ppm/°C

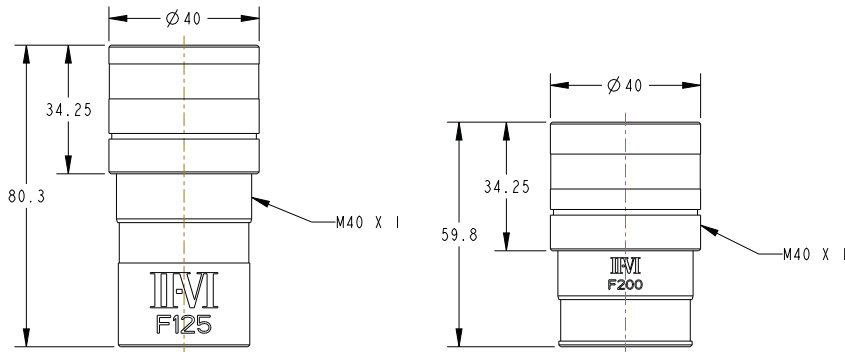
### Total Absorption\*

HP Grade	$\leq$ 10ppm at 1.064 $\mu$ m
STD Grade	$\leq$ 30ppm at 1.064 $\mu$ m

\* Total absorption based on 5mm thick witness sample

## Replacement Focusing Lens Modules

II-VI Infrared presents its line of replacement focusing lens modules, created for fast and seamless exchanges. Using fused silica lenses, the focusing lens modules are designed for direct replacement in OEM cutting head models. Standard products are offered for 125mm, 150mm, 200mm and 250mm focal lengths with 28mm clear apertures. Custom designs are also available upon request.



## Zinc Sulfide Multispectral Optics

II-VI Infrared also offers ZnS(Multispectral), zinc sulfide material treated by a hot isostatic press (HIP) process. Under intense heat and pressure, defects within the crystalline lattice are virtually eliminated, leaving a water-clear material with minimal scatter and high transmission characteristics. Freeform and aspheric surfaces, as well as standard spherical surfaces, on ZnS(MS) are made possible using II-VI Infrared's industry-leading diamond-turning and manufacturing capabilities, along with progressive metrology. ZnS(MS) is an adaptable solution for advanced 1µm needs.

**II-VI QUALITY**  
 3D metrology capabilities  
 Total absorption measurements available  
 PCI testing capabilities

Mechanical Properties	
Density	4.09g/cm <sup>3</sup>
Young's Modulus	74.5 GPa
Poisson's Ratio	0.27
Knoop Hardness	150-165kg/mm <sup>2</sup>
Thermal Properties	
Thermal Conductivity	27.2W/mK (20°C)
Thermal Expansion	6.5x10 <sup>-6</sup> ppm/°C
Bulk Absorption	
	≤200ppm/cm at 1.064µm





## WORLDWIDE SALES OFFICES

To place an order, contact a II-VI sales representative at any of the following locations, or visit [www.ii-vi.com/contact](http://www.ii-vi.com/contact) for our most complete and up-to-date contact information.

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#04-07 & 05-07/12,  
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F. 65.6481.8702  
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[sales@ii-vi.co.uk](mailto:sales@ii-vi.co.uk)

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