

High Performance Optics For Industrial Fiber Lasers

The logo for Fiberlens, featuring a stylized purple and blue lens-like graphic to the left of the word "Fiberlens" in a sans-serif font, with a trademark symbol (™) to its upper right.

Fiberlens™



Best performance



Superior coating



Approved and used by leading OEMs



Best cost-benefit ratio



Ophir optical coatings for 1 micron high power lasers

The recent evolution of the industrial metal processing market introduced us with fiber laser technology, offering high energy laser beam transmitted through numerous optical components. Subsequently, the optical components are required to meet the highest standards of optical coating.

With decades of knowledge and experience in the optical industry, using cutting-edge measurement equipment, we offer a wide array of first-class optical coatings for high power lasers in the 1 micron wavelength range.

Capabilities

- High LIDT (laser induced damage threshold) coatings 10J/cm²
- Low absorption 10-50ppm
- High quality fused silica substrates

Typical coating features

AOI	0°-15°
%R	@1030-1090 < 0.1%-0.2%
%T	@650-670 > 60%-95% (2 sides)
%T @1030nm	T > 99.6%
%T@1064nm	T > 99.7%
%T@1070-1080nm	T > 99.6%
S/D	10-5

Thermal properties

Specific heat	0.770 J/(gK)
Thermal conductivity	1.38W/(mK)
Thermal diffusivity	0.0075 cm ² /s
Thermal expansion	0.57x10 ⁻⁶ ppm/°C

Quality assured

- Chosen by top-tier laser OEM manufacturers
- Extensively tested and utilized in laser applications above 8kW

Mechanical properties

Elastic (Young's) modulus	73GPa
Poisson's ratio	0.16
Density	2.20g/cm ³
Knoop hardness (100g load)	522kg/mm ²

Refractive index and dispersion

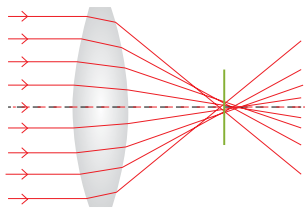
Thermal coefficient	$\Delta n/\Delta T$ 9.6ppm/°C
Wavelength	1064nm



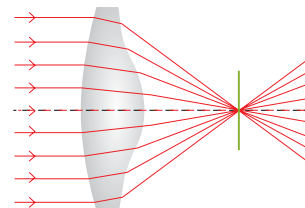
Ophir Fiberlens™ collimating and focusing lenses




Aspherical surfaces on collimating and focusing lenses provide improved performance over conventional, spherical surfaces in high-power industrial fiber laser and direct diode laser systems. The aspherical optics' shape reduces spherical aberration resulting in a smaller spot size, a uniformed spot shape and greater depth of focus.

Spherical lens



Aspherical lens



Legend
 Light rays
 Optical axis
 Best focus point

Ophir Fiberlens™ aspheric lenses are available in custom configurations for all high-power industrial fiber laser and direct diode laser systems.

Specification	Value / Range	Tolerance
Diameter (range)	12.0 – 300.0 mm	+ 0 / - 0.10 mm
Effective focal length (EFL)	20.0 – 500.0 mm	< 0.1%
Lens types	Aspherical – plano Aspherical – spherical Aspherical – aspherical	
Clear aperture	> 90% of diameter	
Asphere power	< 2.0 fringe at 632.8 nm Radius of curvature	
Asphere irregularity	< 0.5 fringe at 632.8 nm (P-V)	
Scratch - dig	20-10 or better	
Surface roughness	< 2 nm RMS	
Substrate material	High-purity, UV-grade fused silica	
Focal length	≤ 0.1%	
ETV	≤ 10µm	

Ophir P/N	Diameter (Inch/ mm)	F.L. (inch/ mm)	E.T. (mm)	Optics Type
631931-117	1.18/ 30.0	4.92/ 125.00	5.8	Focusing doublet 125mm FL
631932-117	1.18/ 30.0	4.92/ 125.00	3.08	
631933-117	1.18/ 30.0	3.94/ 100.00	5.48	
631934-117	1.18/ 30.0	3.94/ 100.00	2.93	Collimating doublet 100mm FL
633771-117	1.18/ 30.0	5.91/ 150.00	3.9	Focusing doublet 150mm FL
633772-117	1.18/ 30.0	5.91/ 150.00	5.42	
633910-117	1.46/ 37.0	5.91/ 150.00	4.7	Focusing doublet 150mm FL
633911-117	1.46/ 37.0	5.91/ 150.00	2.7	
634132-117	1.46/ 37.0	3.94/ 100.00	5	Collimating doublet 100mm FL
634133-117	1.46/ 37.0	3.94/ 100.00	2.1	
632284-117	1.50/ 38.1	7.50/ 190.50	7	Single lens
631669-117	1.50/ 38.1	5.00/ 127.00	7	Single lens
632291-117	1.50/ 38.1	7.09/ 180.00	3	Single lens
632292-117	1.50/ 38.1	8.66/ 220.0	3.3	Single lens
632294-117	2.00/ 50.8	5.91/ 150.00	11.6	Single lens
633112-117	2.00/ 50.8	7.50/ 190.00	11.45	Single lens
632331-117	1.18/ 30.0	7.87/ 200.00	2.45	Single lens
632754-117	1.00/ 25.4	8.00/ ~200.00	6	Single lens
633842-117	1.00/ 25.4	4.43/ 112.5	2.4	Single lens
633214-117	1.00/ 25.4	3.94/ 100.00	2	Single lens
631521-117	1.38/ 35.0	5.91/ 150.00	9	Single lens
633841-117	1.00/ 25.4	8.86/ 229.00	3.2	Single lens
633415-117	1.50/ 38.1	8.27/ 210.00	6.38	Single lens
633120-117	1.97/ 50.0	8.66/ 220.00	2.8	Single lens
633230-117	1.57/ 40.0	5.91/ 150.00	5	Single lens

Protective windows for high power fiber lasers

Ophir P/N	Diameter (Inch/mm)	E.T. (mm)
633267-117	0.85/ 21.5	2
632252-117	0.88/ 22.4	4
632445-117	1/ 25.4	3
633723-117	1/ 25.4	5
633481-117	1/ 25.4	4
632830-117	1.18/ 30.0	5
632240-117	1.18/ 30.0	1.5
632755-117	1.26/ 32.0	6.35
632595-117	1.31/ 33.3	1.5
632251-117	1.34/ 34.0	5
633824-117	1.38/ 35.0	1.5
632851-117	1.42/ 36.0	5
633411-117	1.46/ 37.0	7
632958-117	1.5/ 38.1	5
633347-117	1.5/ 38.1	1.5
632933-117	1.65/ 42.0	8
632498-117	1.97/ 50.0	2
632346-117	2/ 50.8	6.35
632713-117	2.17/ 55.0	1.5
633824-117	1.38/ 35.0	1.5

Visit www.ophiropt.com/laser-optics

to find out more about additional related products:

- Protective windows
- Spheric & aspheric lenses
- Assembled mechanics & optics doublet and singlet

About Ophir Optronics

Established in 1976, Ophir Optics is a global leader in the High Power Laser Optics industry, and a reputable OEM supplier.

We leverage our vast experience, expertise and technologies, to develop and manufacture superior optics for the industrial lasers industry.

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