

## GAUSSIAN BEAM FIBER FOCUSERS

FOR fiber lasers and photonic industries

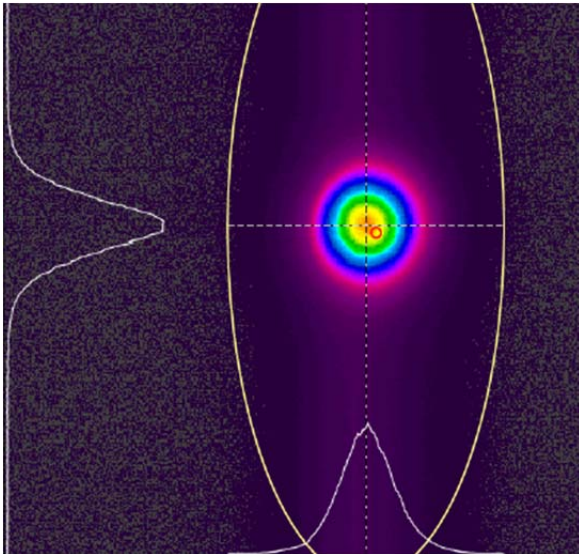
We provide a complete line of Gaussian beam fiber-optic focusers for focusing light existing from a fiber to a specified beam diameter. Through detailed design considerations and utilizing diffraction-limited lens, the spot size of a few microns can be achieved. These focusers exhibit extremely low insertion loss, very high return loss, and high reliability.

We have the capability to design and manufacture custom focusers to the specs of your choice. Beam diameter, working distance, fiber type, and wavelength can all be customized to fit your individual applications.

Standard wavelengths are 900-1100nm and 1520-1600nm nanometers. Customized designs in other wavelengths can also be made per your requests, from 400 up to 2000 nanometers.

These focusers are available with variety of different single-mode fiber (SMF-28, PM980, PM13, PM15) and LMA fibers, and cabling options (bare fiber, loose tube and tight buffered tubes), providing the appropriate level of.

### Example 1: 6μm PM 980 fiber focuser for mode-locked fiber laser



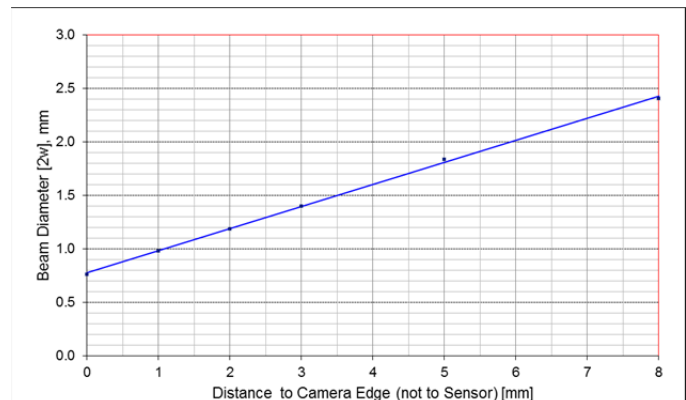
#### Features:

- Clean Gaussian beam profile
- Beam diameters 4um --1000um
- Low optical loss
- Compact size
- Single mode fibers, PM fibers, LMA & multimode fibers
- Customized beam size & working distance.
- Telcordia GR1221 compliant

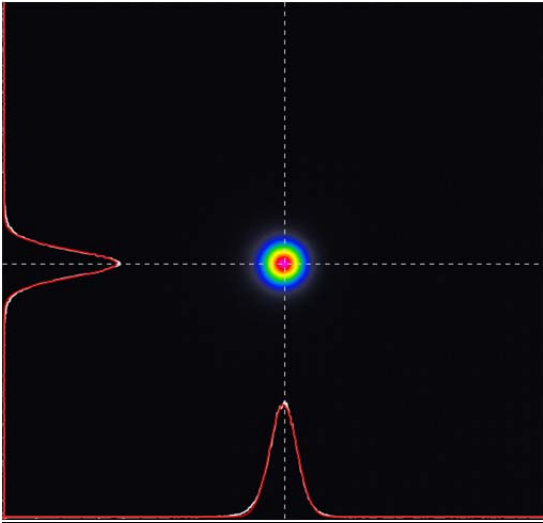
#### Applications:

- Passive mode-locking
- Harmonic generations
- Opto-electric conversion
- Acousto-optic conversion
- Confocal microscopy

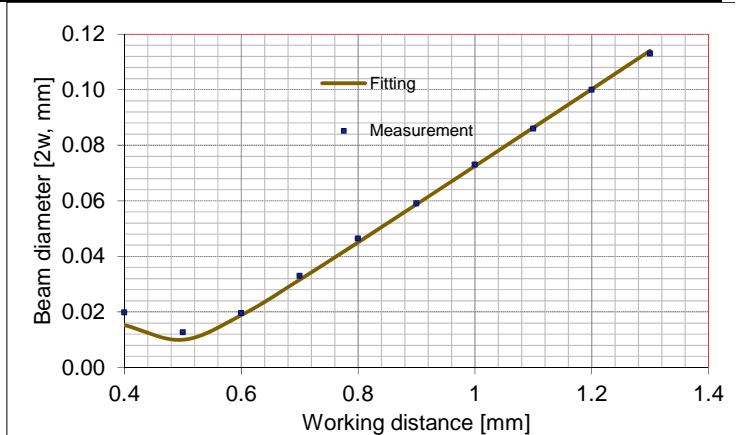
Gaussian waist fit with M2			
Date	11/23/2016	Wave (nm)	1.030E-03
PN:	QX3-1030-6-PM980	2wx0	0.0057
SN:	112016-6-2	Zx0	-3.1375
Test by:	Phil H.	M2	1.00
		ResSq	8.7191E-03
Dist aft lens (mm)	2wx (mm)	Calc wx (mm)	(2wx-calc)^2
0	0.7611	0.727931	1.10017850E-03
1	0.9745	0.959927	2.12361040E-04
2	1.184	1.191926	6.28179629E-05
3	1.399	1.423925	6.21266845E-04
5	1.823	1.887926	4.21535025E-03
8	2.634	2.583928	2.50717102E-03



Example 2: 10μm PM 980 fiber focuser for mode-locked fiber laser \*



Gaussian waist fit with M2			
Wavelength (mm)	1.0643E-03	DUT	
2wy0	0.0097	spec 2w0 [um]	10
Zy0	0.4846	PN	AO1064-10-PM98
M2	1.00	SN:	102019-10-5
ResSq	3.3625E-05	Test by	JT
DTO-CCD (mm)	2wx (mm)	Calc wx (mm)	(2wx-calc)^2
0.4	0.0198	0.015278	0.00002045
0.5	0.0126	0.009961	0.00000696
0.6	0.0196	0.018795	0.00000065
0.7	0.033	0.031552	0.00000210
0.8	0.0464	0.045011	0.00000193
0.9	0.059	0.058692	0.00000009
1	0.073	0.072469	0.00000028
1.1	0.086	0.086295	0.00000009
1.2	0.1	0.100151	0.00000002
1.3	0.113	0.114026	0.00000105



- ❖ The data is measured with **Wave Source Photonics Inc. WaveView Beam Profiler** that has 2umx2um pixel sizes. The shortest working distance of the *WaveView* beam profiler is 0.4mm.