

# Square Core Fibers

**Fiber Type:**  
Step Index  
Multimode

**Fiber Construction:**  
Silica Core/  
Doped Round  
Cladding

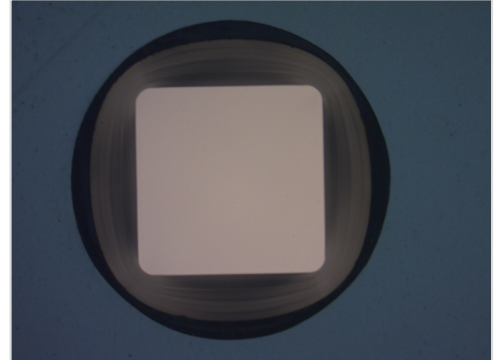
Square core fibers excel in specific applications where traditional circular core fibers with Gaussian outputs are not ideal. The uniform “top hat” intensity profile these fibers provide are the desired output profile when performing tasks such as welding, photolithography, and spectroscopy. Square core fibers with round claddings are also excellent candidates for use in the laser diode industry, where the square shape enables a more ideal coupling match with the diode source. Fiberguide offers pure silica square core fibers with a fluorine doped cladding (0.22 NA) in a wide range of core diameters from 100  $\mu\text{m}$  to 1000  $\mu\text{m}$ .

## Applications

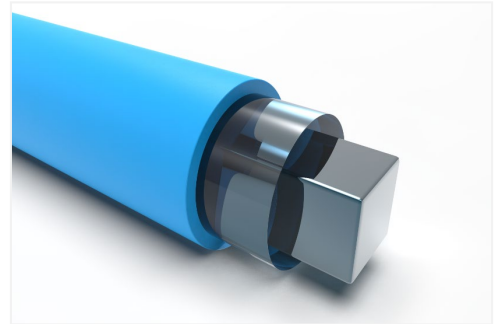
- Laser materials processing
- Astronomical spectroscopy
- Non-circular diode beam coupling
- Photolithography

## Features

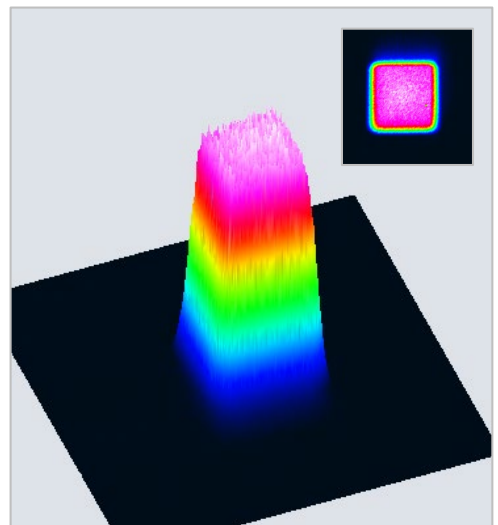
- Homogenized output distribution
- Top hat beam profile
- Greater capture area than round fibers for square inputs
  
- Broad application wavelengths :
  - 190nm to 1250nm (High OH)
  - 300nm to 2400nm (Low OH)
  
- Various jacketing options
  - Acrylate
  - Nylon
  - Polyimide



Square core/ Round Clad



Rendering of Square Core Fiber



Actual Beam Profile

# Square Core Fibers

## Specifications

**Fiber Type:**  
Step Index  
Multimode

**Fiber Construction:**  
Silica Core/  
Doped Round  
Cladding  
or  
Square  
Cladding

<b>Numerical Aperture</b>	0.22 ± 0.02
<b>Core Sizes (Flat to Flat)</b>	100 μm to 1000 μm
<b>Typical Clad/Core Ratio (RD clad )</b>	1.2 (diagonal to Clad OD)
<b>Dimensional Tolerances</b> - Core/ Clad/ Jacket - Corner Rounding in Core (R/L)	± 2%/ ± 2%/ ± 5% ≤ 25%
<b>Jacketing Options &amp; Temp Range:</b> - Acrylate - Nylon - Polyimide	-40°C to +85 °C -40°C to +100 °C -190°C to +350°C
<b>Proof Test Level (4 axis bend)</b> - Acrylate/ Nylon - Polyimide	100 kpsi 50 kpsi
<b>Anti-Reflective Coating Option</b>	Standard thin film coatings or RARe Motheye Nanosurfacing available upon request

Fiber Series	Core	Clad	OH Content
ASQR	Square	Round	Low
SSQR	Square	Round	High

## Typical Transmission Curve

