

# DC-200/85-Yb-ROD

*Ytterbium doped ROD fiber with ultra large mode area*

- Extremely large mode area
- High pump absorption
- Can be operated in PM mode

With an effective area above 3000  $\mu\text{m}^2$ , the DC-200/85-Yb-ROD represents the pinnacle of active gain fibers. The very large effective area combined with extremely high pump-absorption of up to 30dB/m pushes the nonlinear thresholds to a new regime in fibers. The rod is aimed at high peak-power pulsed amplifiers and has been shown to handle mega-Watt peak-power levels.

The multimode pump light is guided by our proven airclad technology, ensuring low loss, high damage threshold and a large numerical aperture (NA). The large NA relaxes tolerances on coupling optics and facilitates the use of lower brightness diodes.

The DC-200/85-Yb-ROD is a rod fiber with an outer diameter of 1.7 mm – bridging the DPSS and fiber laser world. The large outer diameter ensures that the extremely large core will not suffer from bending loss. Moreover, the rod is coating free to facilitate thermal management in high-power setups. The rods are available with large AR coated end-caps in a range of standard lengths. Other configurations are available upon request.

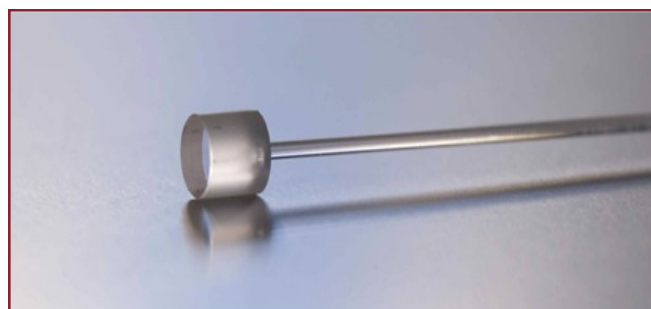
For polarization maintaining RODs, we recommend our DC-285/100-PM-Yb-ROD.

More info on using ROD fibers can be found on our website at [www.nktphotonics.com/support](http://www.nktphotonics.com/support)

## Applications

- Ultra high-power amplifiers
- Ultra high-power polarized lasers
- Ultra high-power Q-switched lasers

Physical properties	
Core material	Yb-doped silica
Outer cladding diameter	1.7 $\pm$ 0.1 mm
Coating	None
Signal core diameter	85 $\pm$ 5 $\mu\text{m}$
Pump-cladding diameter	200 $\pm$ 5 $\mu\text{m}$
Pump-cladding shape	Circular
Outer cladding material	Pure silica
Inner cladding material	Pure silica



## Optical properties

### Signal core

Mode field diameter	65 $\pm$ 5 $\mu\text{m}$
NA @ 1060 nm	~ 0.02

### Multimode pump core

Numerical aperture @ 950 nm	0.55 $\pm$ 0.05
Pump absorption @ 920 nm	~ 10 dB/m
Pump absorption @ 976 nm	~ 30 dB/m

### System performance

NL FOM <sup>(1)</sup>	~ 8 [rad·ns/m]
Slope efficiency <sup>(2)</sup>	~ 60 %

<sup>(1)</sup> The nonlinear figure-of-merit is calculated as:

$$\text{NL FOM} = \frac{\gamma}{g_0^{\max}} \cdot 10^6 \left[ \text{rad} \cdot \frac{\text{ns}}{\text{mJ}} \right]$$

<sup>(2)</sup> With respect to pump power in the fiber

## Standard configuration

	Rod length	End 1	End 2
Type I	36 cm	End cap	End cap
Type II	55 cm	End cap	End cap
Type III	55 cm	End cap	Sealing
Type IV	80 cm	End cap	End cap
Type V	80 cm	End cap	Sealing
Type VI	120 cm	Sealing	Sealing

Sealed ends are angle-cleaved to 3°  $\pm$  1° to minimize reflection from the facet. Sealing length is 50  $\mu\text{m}$   $\pm$  25  $\mu\text{m}$  (measured on the airclad). The standard configurations are available from stock. Other configurations can be manufactured upon request.

DC-200/85-Yb-ROD-110622