

# aeroGAIN-ROD module

High power PM ytterbium ROD fiber gain module

- Diffraction limited beam quality
- High peak power damage threshold
- Compact format
- High NA pump cladding
- AR coated end-caps
- Optimized for 1030-1040 nm range
- Supports PM and non-PM amplification



## Applications

- Ultrafast high power pulsed lasers

aeroGAIN-ROD module is the ultimate in fiber amplification for pulsed lasers with a power handling previously only available in solid state configurations. With a  $3300 \mu\text{m}^2$  mode field area and high pump absorption, the aeroGAIN-ROD module offers up to ten times the performance of our aeroGAIN-BASE models. The excellent mode quality and easy coupling makes the aeroGAIN-ROD module an ideal gain medium for ultrafast high power amplifiers.

The rugged aluminum body makes the module easy to handle and mount for both OEM integration and scientific laboratory setups. Integrated water cooling with quick coupling ensures efficient thermal management and a long maintenance-free lifetime of thousands of hours.

The pump light is guided by our proven airclad technology, with high reliability, high damage threshold and large NA. The modules comes standard with high power AR coated end-caps. Output endcap is slightly angled for minimal feedback.

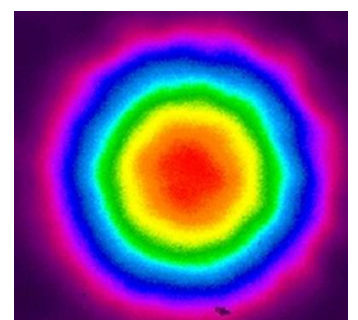
Model	Signal core diameter	Mode field diameter ( $1/e^2$ @ 1040 nm)	Pump cladding diameter
1.1	~55 $\mu\text{m}$	45 $\mu\text{m} \pm 4 \mu\text{m}$	200 $\mu\text{m} \pm 10 \mu\text{m}$
2.1	~85 $\mu\text{m}$	65 $\mu\text{m} \pm 5 \mu\text{m}$	260 $\mu\text{m} \pm 15 \mu\text{m}$

All aeroGAIN-ROD models are diffraction limited gain modules leading to several advantages compared to standard multimode LMA fibers:

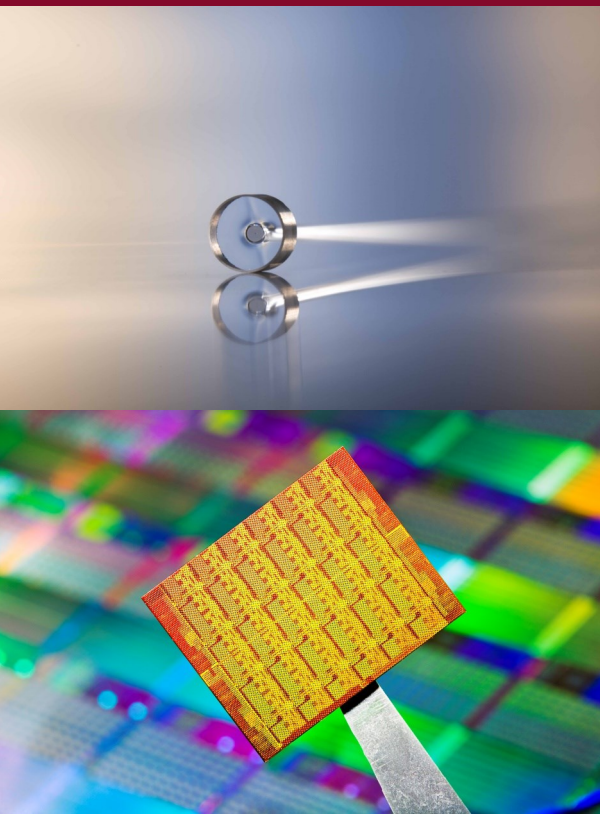
- Better output beam stability
- Excellent beam quality
- No coiling-induced mode area compression

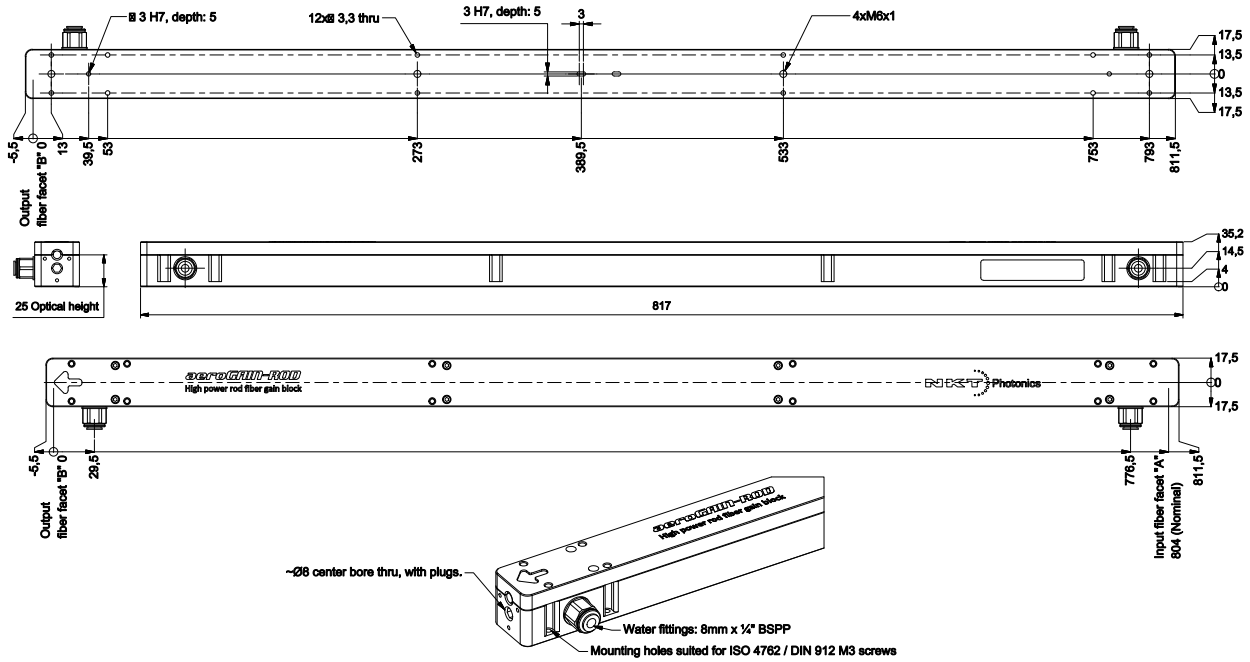
See more at our website:

[www.nktphotonics.com/aerogain-rod](http://www.nktphotonics.com/aerogain-rod)



Example of near field recorded at 1032 nm





## Specifications

Signal wavelength	1030-1040 nm
Pump cladding NA (FWHM@950 nm)	≥ 0.50
Gain fiber length	804 mm ± 3 mm
Cladding absorption@915 nm	5 dB ± 0.5 dB
Cladding absorption@976 nm	~15 dB (nominal)
Typical PER*	≥ 15 dB
Typical optical efficiency*	≥ 60%
Typical M <sup>2</sup>	≤ 1.3
End-cap dimensions (DxL)	6x5 mm
End-cap coating R@ 1030 nm	≤ 0.2%
End-cap coating R@ 976 nm	≤ 0.3 %
End-cap angle, input	≤ 0.5°
End-cap angle, output	2° ± 0.5°
Signal average power	≤ 100 W
Dimensions (WxLxH)	35x817x35.2 mm
Weight	2.5 kg
Water cooling connection	8 mm x 1/4" BSPP
Recommended water flow**	> 2 L/min
Recommended water temperature**	~25°C
Operating temperature	20-30°C (ambient)
Storage temperature	-20°C - +60°C

\*Seed level 5 W @ 1030 nm, 80 cm rod length, 976 nm pumping

\*\*We recommend using DI water containing an anticorrosive additive to protect the aluminum cooling circuit. Required water flow and water temperature depends on the actual optical system parameters.

All NKT Photonics products are produced under our quality management system certified in accordance with the ISO 9001:2008 standard.



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