

# SINGLE CRYSTAL FIBER AMPLIFIER

## Taranis

Single Crystal Fiber (SCF) amplifiers are the best solution to amplify short pulse lasers in a MOPA configuration since they do not suffer from the strongly aberrant thermal lensing effect that degrades the beam in bulk crystal amplifiers. Fibercryst pioneered the SCF technology and developed the **taranis** module benefiting from a unique, patented, cooling solution for high power pumping. **taranis** module is an industrial component with no adjustments; the only requirements are proper alignment and focusing of the seed laser.



A **taranis** module can amplify a pulsed seed laser from a few kHz to several tens of MHz, or a seed laser from ten's of nanoseconds down to a few hundred of femtoseconds with seed powers ranging from a few hundred of mWatts up to tens of Watts.

**taranis** modules are available with Yb:YAG (Ytterbium) or Nd:YAG (Neodymium) material.

## Nd:YAG water cooled module

### NDYG-PL0002-W2N

#### CRYSTAL DIMENSION

- Length : 50 +/- 1 mm
- Typical Diameter : 1 mm +/- 5%
- Typical doping rate : 0,2 % at. +/- 0.05%

#### WATER-COOLED SYSTEM

- Typical heat transfer coefficient fiber/metallic plate  $H=5W/cm^2.K$
- Dimensioned for up to 200 W pumping
- Copper water box with protective Ni layer

Water cooling should be operated under 5 bars of pressure and between 3 to 4 l/min at 18°C

Operating temperature: +15°C to +35°C (no condensing water)

Storage temperature: +15°C to +35°C (no condensing water)

[www.fibercryst.com](http://www.fibercryst.com)

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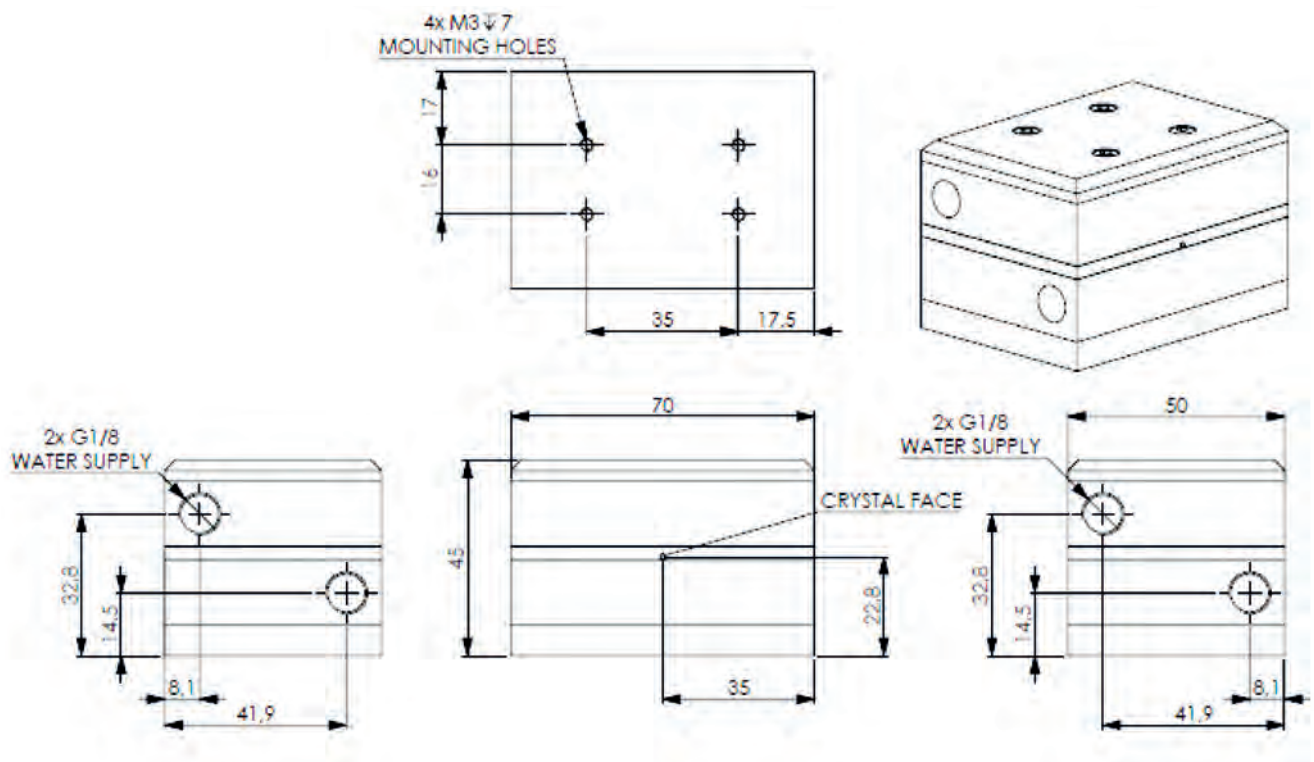
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## DIMENSIONS



## OPTICAL SPECIFICATIONS

Typical transmission	>98% at 1 $\mu\text{m}$ [see note 1 and note 4]
Depolarization losses	< 2% [see note 1]
Guiding efficiency	> 80% at 1 $\mu\text{m}$ [see note 1]
Coating	AR/AR 808 nm and 1064 nm.
Clear aperture diameter	800 $\mu\text{m}$
Max energy density	3 J/cm <sup>2</sup> at 1 ns pulse duration
Pump wavelength	808 nm
Max pump power	150 W [see note 2]
Max input pulse duration	Continuous wave
Min output pulse duration	10 ps [see note 3]

(1) Experimental conditions upon request. The transmission value takes into account the reabsorption effect at 1  $\mu\text{m}$  without pumping.

(2) Above 150 W of pump power, contact FIBERCRYST for specific recommendation.

(3) Below 10ps pulse duration, contact Fibercryst.

(4) For optimum performances the center wavelength should be at 1064.3 nm + or – 0,1 nm and the full width at half maximum (FWHM) lower than 1 nm.

The **Taranis** module should be handled with cares as any other optical component.