



# DeLn Optics

Optical Material

Optical Coating

Optical Components

Waveplates

Crystals

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### Online Inquiry

Contact:  \*

Company:

Subject: Grooved Nd:YAG

Tel:

E-mail:  \*

Content:  \*

Code:  8741

\*(marked \*should be filled)

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# GROOVED ND:YAG

Compared with the common Nd:YAG laser rods, the grooved Nd:YAG laser rods has the following advantages:

Thermal effect has been reduced

The quality of the beam has been improved

The efficiency of Grooved Rod has been improved by 10%-20%

## Properties

Chemical Formula	Nd:Y3Al5O12
Crystal Structure	Cubic
Lattice Constants	12.01
Concentration	$\sim 1.2 \times 10^{20} \text{ cm}^{-3}$
Melting Point	1970°C
Density	4.56 g/cm <sup>3</sup>
Mohs Hardness	8.5
Refractive Index	1.82
Thermal Conductivity	14 W/m /K @20°C, 10.5 W /m /K @100°C
Thermal Expansion Coefficient	$7.8 \times 10^{-6}/\text{K}$ [111], 0 - 250°C
Lasing Wavelengths	1064 nm
Photon Energy	$1.86 \times 10^{-19} \text{ J}@1064\text{nm}$
Stimulated Emission Cross-Section	$2.8 \times 10^{-19} \text{ cm}^2$
Relaxation Time of Terminal Lasing Level	30 ns
Radiative Lifetime	550us
Spontaneous Fluorescence	230us
Loss Coefficient	$0.003 \text{ cm}^{-1}@ 1064 \text{ nm}$
Pump Wavelength	807.5 nm
Absorption band at pump wavelength	1 nm
Linewidth	0.6nm
Polarized Emission	Unpolarized
Thermal Birefringence	High

## Specifications

Nd Dopant Level	0.5-1.1 atm%
Orientation	<111> crystalline direction ( $\pm 0.5\text{deg}$ )
Dimension Tolerances	Diameter: $\pm 0.05\text{mm}$
	Length: $\pm 0.5\text{mm}$
Wavefront Distortion	$\lambda/8@633\text{nm}$
Surface Flatness	$\lambda/10@633\text{nm}$
Parallelism	<10 arc seconds
Perpendicularity	<5 arc minutes

Surface Quality	10/5 Scratch and Dig
Clear Aperture	>90%
Chamfer	<0.1mmx45°
Extinction Ratio	Rods with diameter from 3 mm to 6.35 mm and with length to 100 mm: >30dB Rods with diameter from 7 mm to 10 mm and with length to 100 mm: >28dB
AR Coating	Reflectivity R<0.25%@1064 nm per surface Damage threshold over 750MW/cm <sup>2</sup> @1064nm, 10 ns and 10 Hz Other coating is per your request

Slabs, Er:YAG, Nd:YAG, Ce:YAG, Cr:YAG, Tm:YAG, Ho:YAG and other ion doped YAG crystals are also available.

## INFORMATION

- ABOUT US
- TERMS OF CUSTOM PARTS
- CONTACT US

## PRODUCT LINE

- OPTICAL MATERIAL
- OPTICAL COATING
- OPTICAL COMPONENTS
- WAVEPLATES
- CRYSTALS
- MICRO OPTICS
- STOCK

## WARRANTY

All products are guaranteed to be in specifications in material and workmanship for a period of 12 months after shipment.

We do not assume liability for installation, labor or consequential damages.

This warranty is not suitable for failure of the products due to misuse, abuse, accident, or neglect.

## CONTACTS

Deln Optics

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