

Nd:YAG crystals

Nd: YAG crystal rod is used in Laser marking machine and other laser equipment.

It is the only solid substances that can work continuously at room temperature, and is the most excellent performance laser crystal.

It is widely used as a solid-state laser materials. YAG rod' s role is to generate a laser, with the partial and full reflect mirror on both ends ,YAG rod can produce a stable and continuous laser, it is the core part of YAG and fiber laser.

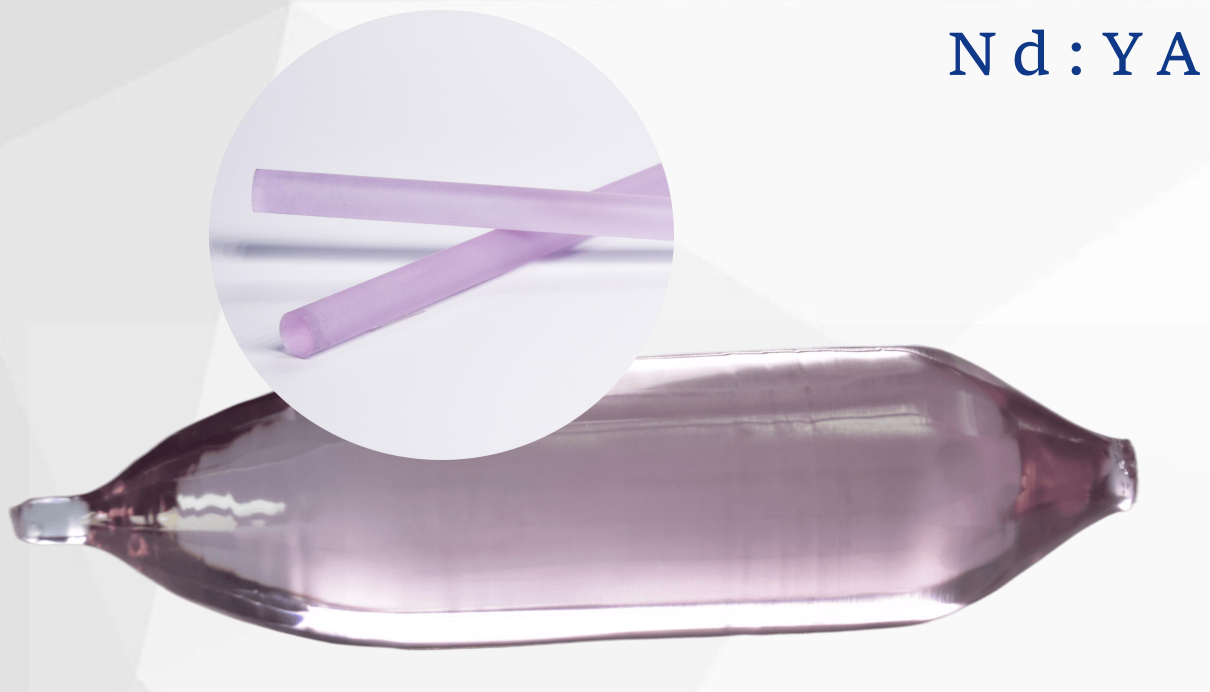
Nd: YAG laser wavelength is 1064nm, it can be used in military, medical, industrial and other fields.



Typical applications of this laser include production of nanopowders and as a pumping source for other lasers.

The YAG (yttrium aluminium garnet) laser can be doped with chromium and neodymium in order to enhance the absorption characteristics of the laser.

Nd:YAG crystals



- High gain;Low threshold ;High efficiency
- High optical quality ;Low loss
- Large mechanical strength
- Good thermal conductivity and thermal shock characteristics
- Suitable for different modes of operation (cw, pulsed, Q-switched, mode locked, doubling of frequency)
- Suitable for high-average power lasers

Basic properties

Chemical Formula	$\text{Y}_3\text{Al}_5\text{O}_{12}$
Crystal structure	Cubic
Lattice constant	12.01Å
Melting point	1970°C
orientation	[111] or [100], within 5°
Density	4.5g/cm ³
Reflective Index	1.82
Thermal Expansion Coefficient	7.8x10 ⁻⁶ /K
Thermal Conductivity (W/m/K)	14, 20°C / 10.5, 100°C
Mohs hardness	8.5
Radiative Lifetime	550 us
Spontaneous Fluorescence	230 us
Linewidth	0.6 nm
Loss Coefficient	0.003 cm ⁻¹ @ 1064nm

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Technical parameters

Dimension	maximum diameter of dia.40mm
Nd Dopant Level	0~2.0atm%
Diameter Tolerance	±0.05mm
Length Tolerance	±0.05mm
Perpendicularity	<5'
Wavefront distortion	$\lambda/8$
Flatness	$\lambda/10$
Surface quality	10/ 5 @ MIL-O-13830A
Coatings	HR-Coating: R>99.8%@1064nm and R < 5% @808nm;AR-Coating (Single layer MgF2): R<0.25% per surface (@1064nm);Other HR coatings, such as HR @1064/532 nm, HR @946 nm, HR @1319 nm and other wavelengths are also available
Damage Threshold	>500MW/cm2

