



## CRYSTALS


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### Nd:YAG Crystal

(Neodymium Doped Yttrium Aluminum Garnet)

Nd:YAG is the earliest and most famous laser host crystal. Since it combines great advantages in many basic properties, Nd:YAG is the ubiquitous presence for near-infrared solid-state lasers and their frequency-doubler, tripler, and higher order multiplier.

#### Advantages of Nd:YAG

- High gain, High efficiency, Low threshold, Low loss at 1.06  $\mu\text{m}$
- Good thermal conductivity and thermal shock characteristics
- Mechanical strength, High optical quality
- Various modes of operation (CW, pulsed, Q-switched, mode locked)

Optical Parameter of Nd:YAG crystal

Diameter (mm)	Standard grade	Excellence grade	Superexcellence grade
$\phi$ 3-6.35	$\leq 0.5$ fringes/ inch	$\leq 0.25$ fringes/ inch	$\leq 0.1$ fringes/ inch
	$\geq 25\text{dB}$	$\geq 28\text{dB}$	$\geq 30\text{dB}$
$\phi$ 7-10	$\leq 0.7$ fringes/ inch	$\leq 0.4$ fringes/ inch	$\leq 0.16$ fringes/ inch
	$\geq 22\text{dB}$	$\geq 25\text{dB}$	$\geq 28\text{dB}$
$\phi$ 11-13	$\leq 1$ fringes/ inch	$\leq 0.6$ fringes/ inch	$\leq 0.2$ fringes/ inch
	$\geq 20\text{dB}$	$\geq 23\text{dB}$	$\geq 26\text{dB}$
$\phi$ 14-16	$\leq 1.2$ fringes/inch	$\leq 0.8$ fringes/inch	$\leq 0.25$ fringes/inch
	$\geq 18\text{dB}$	$\geq 20\text{dB}$	$\geq 23\text{dB}$

HGO offer Nd:YAG specifications

Doping(atm%):	0.1% ~ 2.5%
Orientation:	$\langle 111 \rangle$ , $\langle 100 \rangle$ , $\langle 110 \rangle$ crystalline direction
Wavefront Distortion:	$\lambda/10$ per inch @ 632.8 nm
Dimension Tolerances:	rods with diameter: $+0.0/-0.05$ mm , Length: $\pm 0.1$ mm
Surface Quality:	10/5 Scratch/Dig MIL-O-1380A
Parallelism:	$< 10''$
Perpendicularity:	$< 5'$
Clear Aperture:	$> 90\%$
Surface Flatness:	$< \lambda/10$ @ 632.8 nm
Chamfer:	$< 0.1$ mm @ $45^\circ$
Barrel Finish:	50-80 micro-inch (RMS) ,
Size	Upon customer request
Coating	AR/HR/PR coating upon customer' s request
Damage Threshold	750MW/CM <sup>2</sup> at 1064nm, TEM00, 10ns, 10Hz
Quality Warranty Period	One year under proper use

Slabs, thread rod, Er:YAG, Yb:YAG,Cr:YAG,Ce:YAG,Tm:YAG,Ho:YAG and other ion doped YAG crystals are also available upon request.

**Nd:YAG crystals with diffusion bonded undoped YAG endcaps are also available from HG Optronics.,Inc..**  
Please [visit here](#).