



Yb:YAG doped yttrium aluminum garnet :

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Yb:YAG is an important diode-pumped laser crystal, which is more suitable for diode pumping than traditional Nd-doped laser materials. Compared with the commonly used Nd:YAG crystal, Yb:YAG crystal has a wider diode pump absorption bandwidth, which can effectively reduce the thermal management requirements of laser diodes. At the same time, the Yb ion laser has a long upper-level fluorescence lifetime, no excited state absorption and energy up-conversion, no radiation heat loss, and the heat load generated per unit pump power is 3 to 4 times lower than that of Nd:YAG crystals. Excellent crystal for average power solid-state lasers.

Main features:

high slope efficiency

High optical quality , thermal conductivity and mechanical strength

No excited state absorption and upconversion

The heat load generated by unit pump power is lower than that of Nd:YAG crystal

Diode pump absorption bandwidth is about 8nm@940nm

Suitable for common high power InGaAs laser diode (wavelength 940nm or 970nm) pumping

Material properties:

Crystal structure	Cubic system
Lattice constant	12.01 Å
Melting point	1970°C
Moh's hardness	8.5
Density	4.56±0.04 g/ cm ³
Specific heat	0.59J/ g.cm ³ @0-20°C
Elastic Modulus	310GPa
Young's modulus	3.17×10 ⁴ Kg/ mm ²
Poisson's ratio	0.3
Tensile strength	0.13~0.26 GPa
Coefficient of thermal expansion	[100] Direction: 8.2×10 ⁻⁶ /K @ 0~250°C

Product parameters :

Doping concentration	0.5~25at%
Orientation	<111>±5°
Wavefront distortion	≤0.125λ/inch@632.8nm _ _
Extinction Ratio	≥25dB
Product Size	Diameter ≤ 30mm, length ≤ 220 mm, slats and discs can be customized
Dimensional tolerance	Diameter: 0/-0.05mm, Length: 0/+0.5mm
Cylindrical processing	Grinding, polishing, threading
Parallelism of end faces	≤10"
Perpendicularity between end face	≤5'
Flatness of end face	λ/10 @632.8nm
Surface Quality	10-5 (MIL-O-13830A)
Chamfer	0.15±0.05mm
Coating	S1/S2: R@1030nm≤0.2%&R@940nm≤2.0%
Damage threshold	≥1GW/ cm ² @1064nm, 10ns, 10Hz
Diode pump absorption wavelength	940nm or 970nm
Special	Wedge angle, concave/convex, hot layer gold plating