

Yb:YAG CRYSTALS

Description

Ytterbium doped Yttrium Aluminum Garnet (Yb:YAG) crystal is one of the most promising laser-active materials.

It is more suitable for diode-pumping than the traditional Nd-doped systems. It can be pumped at 0.94 μm laser output. Compared with the commonly used Nd:YAG crystal, Yb:YAG crystal has a much larger absorption bandwidth to reduce thermal management requirements for diode lasers, a longer upper-state lifetime, three to four times lower thermal loading per unit pump power. Yb:YAG crystal is expected to replace Nd:YAG crystal for high power diode-pumped lasers and other potential applications.

Standard specifications

Orientation	[111]
Doping concentration	0.2 – 25 atm. %
Extinction ratio	>28 dB
Dimensions tolerance	+0/-0.05 mm
Length tolerance	± 0.1 mm
Surface quality	10-5 S-D
Surface flatness	$< \lambda/10 @ 632.8$ nm
Parallelism error	< 10 arcsec
Perpendicularity	< 10 arcmin
Protective chamfers	< 0.1 mm x 45°



Features

- Ideal for diode pumping
- Very low fractional heating, less than <11%
- Very high slope efficiency, more than 56%
- Broad absorption band, about 18 nm @ 940 nm
- High thermal conductivity and strength

Miscellaneous

- Custom design production is also available
- Mass production at 2000 pieces per month available
- Various end cuts available (plano/plano, wedge/wedge, brewster cut, etc.)
- Various dielectric coatings are available. Complex coatings are realized with IBS technique

Catalog Items

Material	Dimensions, mm	Coatings	End surfaces	Product ID		
Yb(5%):YAG	5x5x2	AR/AR@940+1030	Right angle cut	3-YB05YAG-01		
	5x5x3			3-YB05YAG-02		
	5x5x5			3-YB05YAG-03		
	5x5x2	HR@1030+HT@940/AR@1030		3-YB05YAG-04		
	5x5x3			3-YB05YAG-05		
	5x5x5			3-YB05YAG-06		
	5x5x2			3-YB05YAG-07		
	5x5x3			-	Brewster angle cut	3-YB05YAG-08
	5x5x5				3-YB05YAG-09	
5x5x1	3-YB10YAG-01					
Yb(10%):YAG	5x5x2	AR/AR@940+1030	Right angle cut	3-YB10YAG-02		
	5x5x3			3-YB10YAG-03		
	5x5x1			3-YB10YAG-04		
	5x5x2	HR@1030+HT@940/AR@1030		3-YB10YAG-05		
	5x5x3			3-YB10YAG-06		
	5x5x1			3-YB10YAG-07		
	5x5x2			-	Brewster angle cut	3-YB10YAG-08
	5x5x3				3-YB10YAG-09	
	5x5x0,5				3-YB20YAG-01	
Yb(20%):YAG	5x5x1	AR/AR@940+1030	Right angle cut	3-YB20YAG-02		
	5x5x2			3-YB20YAG-03		
	5x5x0,5			3-YB20YAG-04		
	5x5x1	HR@1030+HT@940/AR@1030		3-YB20YAG-05		
	5x5x2			3-YB20YAG-06		
	5x5x1			3-YB20YAG-07		
	5x5x2			-	Brewster angle cut	3-YB20YAG-08
	5x5x3				3-YB20YAG-09	
	5x5x3				3-YB20YAG-09	

Related products and accessories

- Low Loss HR Mirrors (page 54)



- Gires-Tournois Interferometer Mirrors (GTI) (page 65)



- Laser Output Coupler (page 63)



- Low GDD Ultrafast Mirrors (page 60)



- Polarizing Cubes for High Power Applications (page 120)



- LBO Crystals (page 157)

