



CRYLINK
— LINKING VALUE —



Crylink LBO NLO Crystals

For high-power lasers



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www.crylink.com

Crylink LBO · Superior Quality

Crylink uses flux lifting to grow LBO crystals, and currently grows LBO crystals in blanks up to 4.8kg in weight, providing large-size LBO crystals.

Crylink LBO crystals not only have high damage threshold, wide transparency range, and efficient frequency conversion capability, but also lead the industry in several key performance indicators. Crylink large-size LBO crystals satisfy the requirements of ultra-fast and ultra-intense laser technology for nonlinear crystal devices with ultra-large aperture and high damage threshold, which will promote the development of ultra-high-power and high-energy laser technology.



Crylink BBO · Weak Absorption Testing



Crylink used a weak absorption tester to perform weak absorption testing on LBO crystals, which self-absorbed <20ppm @ 1064nm.

The left image shows the LBO bulk weak absorption test results at 1064nm.

Crylink LBO · Coating

Crylink utilizes advanced Ion-Assisted Deposition (IAD) coating technology to ensure high quality and ultra-high durability of LBO crystal surface coatings.

Test conditions:

Wavelength: 1064nm

Pulse width: 5ns

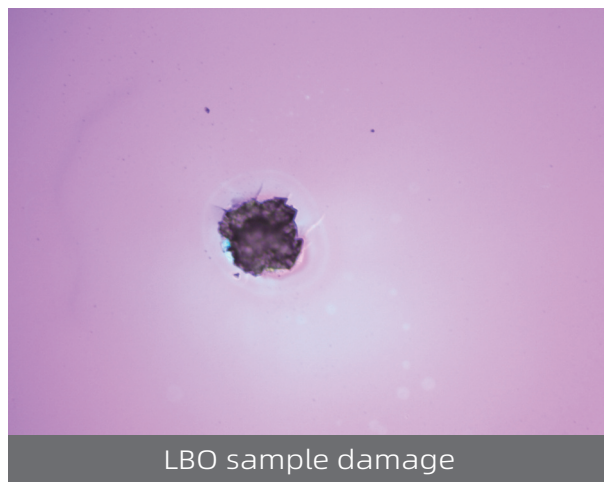
Spot distribution: 425.3 um

Linear polarized light

Sample testing angle: 0°

Test result:

33.10 J/cm²



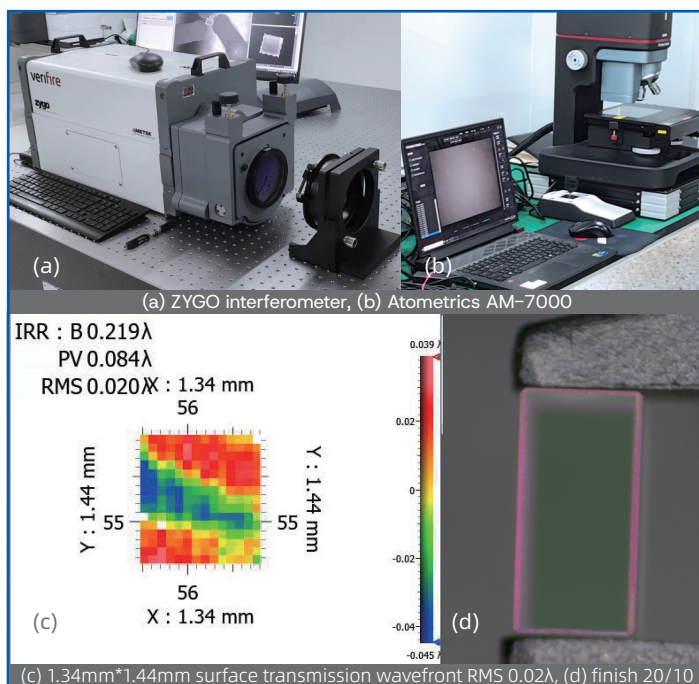
LBO sample damage

Crylink LBO • Quality Control Tests

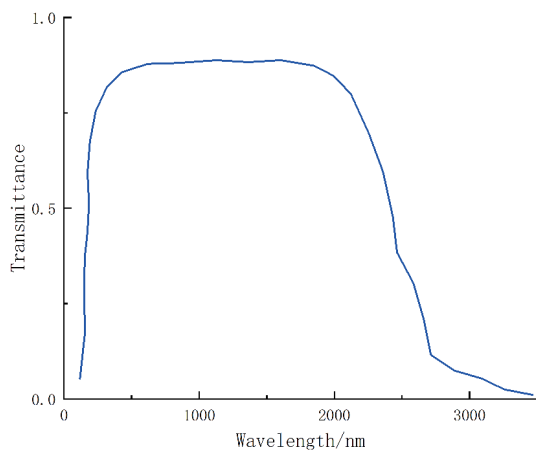
Crylink has adopted a series of strict testing measures to ensure that the quality and performance of LBO crystals meet the standards.

- Internal quality testing of LBO crystals using a 20mw green laser;
- Viewing the surface finish of the crystal through a microscope;
- Flatness, wavefront, and parallelism detection using ZYGO laser interferometer;
- Surface roughness inspection with Atometrics AM-7000 white light interferometer;

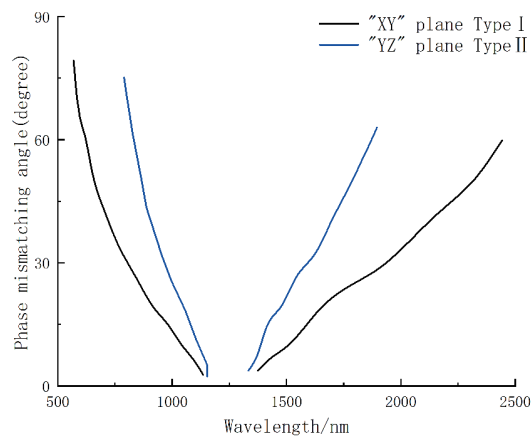
Through these comprehensive and precise inspection methods, the high quality of LBO crystals is effectively guaranteed. The figure on the right shows the test results of LBO finish and transmitted wavefront.



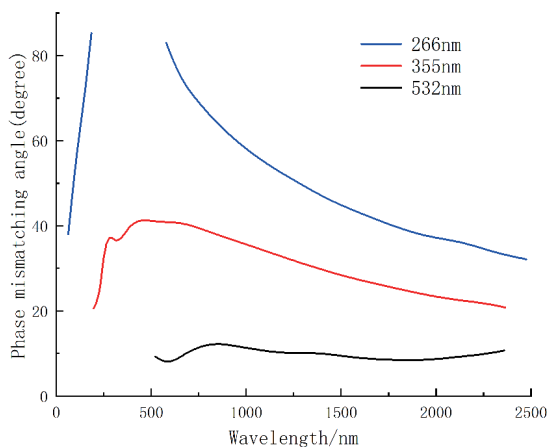
Crylink LBO • Spectra



LBO transmission spectrum



The SHG tuning curves of LBO crystal



LBO crystal type I OPO tuning curves



Scan the QR code and go to the website
to learn more about LBO parameters



Crylink LBO • Parameters

Physical and Chemical Characteristics	
Attribute	Value
Chemical Formula	LiB ₃ O ₅
Crystal Structure	Orthorhombic, Space group Pna2 ₁ , Point group mm2
Lattice Parameters	a=8.4473Å, b=7.3788Å, c=5.1395Å, Z=2
Mass Density	2.47 g/cm ³
Mohs Hardness	6
Melting Point	About 834°C
Coefficient of Thermal Conductivity	3.5W/m/K
Optical and Nonlinear Optical Properties	
Attribute	Value
SHG Phase Matching	551–2600nm (Type I); 790–2150nm (Type II)
NLO Coefficient	d _{eff} (I)=d ₃₂ cosΦ (Type I, XY plane)
	d _{eff} (I)=d ₃₁ cos2θ+d ₃₂ sin2θ (Type I, XZ plane)
	d _{eff} (II)=d ₃₁ cosθ (Type II, YZ plane)
	d _{eff} (II)=d ₃₁ cos2θ+d ₃₂ sin2θ (Type II, XZ plane)
Non-vanished NLO Susceptibilities	d ₃₁ =1.05±0.09pm/V
	d ₃₂ =−0.98±0.09pm/V
	d ₃₃ =0.05±0.006pm/V
Therm-optic Coefficient (/°C, λ in μm)	dn _x /dT=−9.3*10 ^{−6}
	dn _y /dT=−13.6*10 ^{−6}
	dn _z /dT=(−6.3−2.1λ)*10 ^{−6}
Angle Acceptance	6.54mrad/cm (Φ, Type I, 1064 SHG)
	15.27mrad/cm (θ, Type II, 1064 SHG)
Transparency Range	160–2600nm
Absorption Coefficients	<0.1%/cm @1064nm; <0.3%/cm @532nm
Sellmeier Equations (λ in μm)	n _x ² =2.454140+0.011249/(λ ² −0.011350)−0.014591λ ² −6.60×10 ^{−5} λ ⁴
	n _y ² =2.539070+0.012711/(λ ² −0.012523)−0.018540λ ² +2.0×10 ^{−4} λ ⁴
	n _z ² =2.586179+0.013099/(λ ² −0.011893)−0.017968λ ² −2.26×10 ^{−4} λ ⁴

Experimental Values of NCPM Temperature	
Interaction Wavelength [μm]	T[°C]
Along X-axis, SHG, Type I	
1.547⇒0.7735	117
1.46⇒0.73	50
1.252⇒0.626	3.5
1.25⇒0.625	−2.9
1.215⇒0.6075	21
1.211⇒0.6055	20
1.206⇒0.603	24
1.2⇒0.6	24.3
1.15⇒0.575	61.1
1.135⇒0.5675	77.4
1.11⇒0.555	108.2
1.0796⇒0.5398	112
1.0642⇒0.5321	148/148.5/149/149.5/151
1.047⇒0.5235	166.5/167/172/175/176.5/180
1.025⇒0.5125	190.3
SFG, Type I	
1.908+1.0642⇒0.6832	81
1.444+1.08⇒0.6179	23
1.135+1.0642⇒0.5491	112
1.547+0.7735⇒0.5157	141
DFG, Type I	
0.532−0.8⇒1.588	135
Along Z-axis, SHG, Type II	
1.342⇒0.671	35
1.3⇒0.65	46

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Crylink LBO • Standard Products

Model	W (mm)	H (mm)	L (mm)	Type	θ (°)	φ (°)	Coating	Application
LBO	3	3	10	Type I	90	11.6	AR/AR @ 1064 + 532 nm	SHG@1064 nm
LBO	3	3	15	Type I	90	11.6	AR/AR @ 1064 + 532 nm	SHG@1064 nm
LBO	25	25	20	Type I	90	11	AR/AR @ 1064 + 532 nm	SHG@1064 nm
LBO	3	3	10	Type II	42.2	90	AR/AR @ 1064 + 532/355 nm	THG@1064 nm
LBO	6	6	0.9	Type I	90	13.8	AR/AR @ 1030 + 515 nm	SHG@1030 nm
LBO	6	6	1	Type I	90	13.8	AR/AR @ 1030 + 515 nm	SHG@1030 nm
LBO	3	3	10		90	0	AR/AR @ 1064 + 532 nm	NCPM SHG@1064nm, T=149°C
LBO	3	3	60		90	0	AR/AR @ 1064 + 532 nm	NCPM SHG@1064 nm, T = 149°C

Note: Partially standard products, contact sales for more information sales@crylink.com

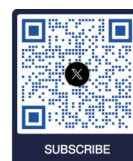
Note: All information and specifications in this product book are subject to change without notice. We reserve the right to make improvements and changes in our products and services. All test data is for reference only and actual performance may vary depending on specific applications and conditions of use.



www.crylink.com
sales@crylink.com

+86-21-66566068

Building 7, No. 718, Baoqi Road, Baoshan District, Shanghai, China



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