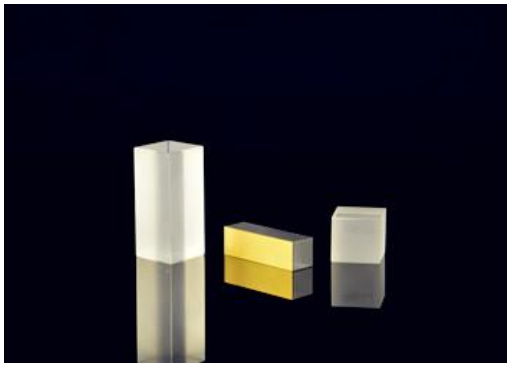
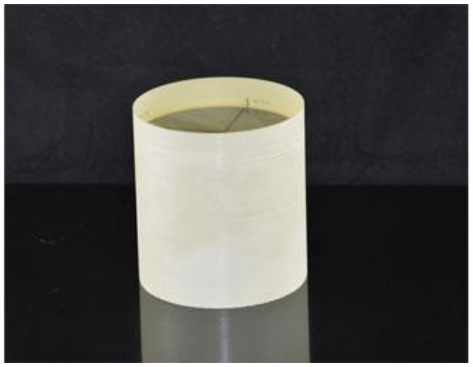
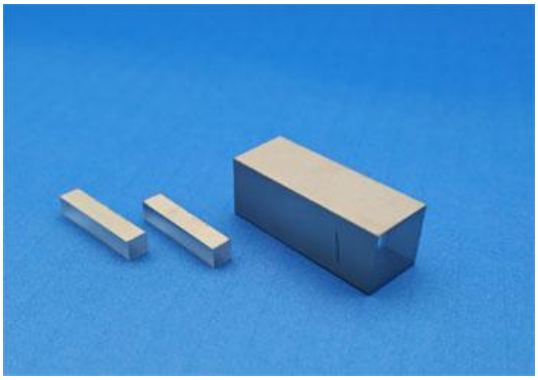
MgO:LiNbO3 Crystals for EO applications

- **Preferably for Er:YAG-, Ho:YAG-, Tm:YAG laser**
- **Wavelengths up to 3μm**
- **Higher damaging threshold than non-doping LiNbO3**
- **Brewster for laser with low amplification**

MgO:LiNbO3 crystals have become one of the most commonly used material for Q-switches and phase modulators for its high EO coefficients, MgO:LiNbO3 has a higher damaging threshold than the non-doping LiNbO3 crystals. With an electric field applied transverse to the direction of light propagation, LiNBO3 cells can be configured to operate at a lower voltage than comparable KD*P cells. LiNbO3 can also be a good choice for infrared wavelengths as long as 3.0 μm. Hangzhou Shalom EO offers the polished, and AR coating and Au-Cr electroded MgO:**LiNbO3 crystals** used in pockels cells.







Modules or types

A variety types of crystals are available upon your request:

- Crystal boules with inspection polishing
- Crystal blanks with inspection polishing
- Crystals with laser grade polishing
- Crystals with AR coating and Cr-Au electrode

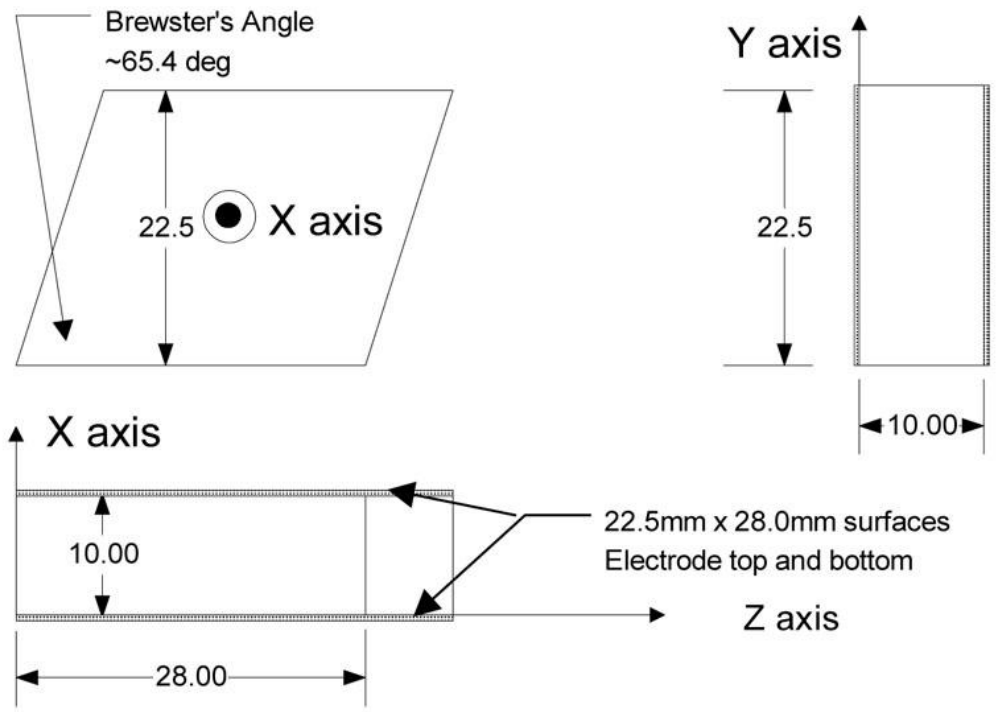
Addr. Room A1031, Boke Mansion, No.9 Xiyuan Road, Xihu District, Hangzhou 310030, China.
Tel:+86-571-87920630 Fax:+86-571-87603342 E-mail:sales@shalomeo.com Home:www.shalomeo.com

SPECIFICATIONS

Specification of MgO:LiNbO3 crystals for pockels cells applications	
Crystal materials	MgO(5mol%):LiNbO3 crystals
Size	Customized
Size tolerance	+/-0.1mm
Length tolerance	+/-0.2mm
Surface quality	20/10 S/D
Parallelism	<20 arc seconds
Flatness	< Lambda/10 @633nm
Chamfer	0.1-0.3mmx45°
Chips	<0.15mm
Side surface	Fine ground
Orientation tolerance	< 10 arc minutes
Wavefront distortion	<Lambda/4@633nm
Extinction ratio	>200:1
Coating	AR/AR@1064nm or customized
Damaging threshold	>300mW/cm^2@1064nm 10nS 10Hz pulse
Electrode on side surface	Chrome gold electrode (Cr+Au)

Note: crystals with other special specificaton is available upon request

Example: MgO:LN crystals with bruster angle



Addr. Room A1031, Boke Mansion, No.9 Xiyuan Road, Xihu District, Hangzhou 310030, China.
Tel:+86-571-87920630 Fax:+86-571-87603342 E-mail:sales@shalomeo.com Home:www.shalomeo.com

Basic Properties

Basic Properties	
Crystal Structure	Trigonal, space group R3c
Cell Parameters	a = 0.515, c = 13.863, Z = 6
Melting Point	1255±5oC
Curie Point	1140±5oC
Mohs Hardness	5
Density	4.64 g/cm3
Absorption Coefficient	~ 0.1%/cm @ 1064 nm
Solubility	insoluble in H2O
Relative Dielectric Constant	e^T_{11}/e_0: 85 e^T_{33}/e_0: 29.5
Thermal Expansion Coefficients(@ 25oC)	||a, 2.0 x 10^{-6}/K ||c, 2.2 x 10^{-6}/K
Thermal Conductivity	38 W /m /K @ 25oC

Linear Optical Properties	
Transparency Range	420-5200nm
Refractive Indices	ne=2.146, no = 2.220 @ 1300 nm
	ne= 2.156, no = 2.232 @ 1064 nm
	ne= 2.203, no = 2.286 @ 632.8nm
Optical Homogeneity	~ 5 x 10^{-5} /cm
Sellmeier Equations (l in mm)	n^2o (l) = 4.9048+0.11768/(l^2 - 0.04750) - 0.027169l^2
	n^2e (l) = 4.5820+0.099169/(l^2 - 0.04443) - 0.021950l^2

Nonlinear Optical Properties	
NLO Coefficients	d33 = 34.4 pm/V
	d31 = d15 = 5.95 pm/V
	d22 = 3.07 pm/V
Efficiency NLO Coefficients	deff =5.7 pm/V or ~14.6 x d36 (KDP) for frequency doubling 1300 nm
	deff =5.3 pm/V or ~13.6 x d_{36} (KDP) for OPO pumped at 1064 nm
	deff =17.6 pm/V or ~45 x d_{36} (KDP) for quasi-phase-matched structure
Electro-Optic Coefficients	g^T33 = 32 pm/V, g^S33 = 31 pm/V
	g^T31 = 10 pm/V, g^S31=8.6 pm/V
	g^T22 = 6.8 pm/V, g^S22= 3.4 pm/V
Half-Wave Voltage, DC Electrical field||z, light ^z Electrical field||x or y, light||z	3.03 KV 4.02 KV

Addr. Room A1031, Boke Mansion, No.9 Xiyuan Road, Xihu District, Hangzhou 310030, China.
Tel:+86-571-87920630 Fax:+86-571-87603342 E-mail:sales@shalomeo.com Home:www.shalomeo.com

Addr. Room A1031, Boke Mansion, No.9 Xiyuan Road, Xihu District, Hangzhou 310030, China.
Tel:+86-571-87920630 Fax:+86-571-87603342 E-mail:sales@shalomeo.com Home:www.shalomeo.com