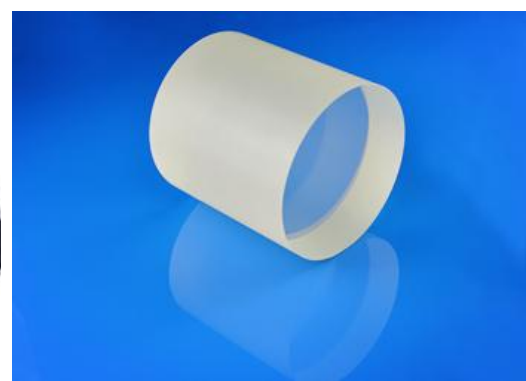
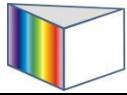


## Lithium Niobate (LiNbO<sub>3</sub>) Crystals and Wafers

Hangzhou Shalom EO offers the **SAW grade lithium niobate (or LiNbO<sub>3</sub>) crystals** and wafers, advanced facilities are equipped for crystals growing, wafer cutting, wafer lapping, wafer polishing and wafer checking, all finished products are passed at Testing of curie Temp and QC inspections. The SAW grade or acoustical grade LiNbO<sub>3</sub> crystals boules, blanks, wafer blanks and polished wafers are available upon customer's request.





Hangzhou Shalom EO supplies the LiNbO<sub>3</sub> crystals boules or blanks and SAW wafers with diameter 3", 4" and 6" , some typical SAW wafer modules are listed below, we have stocked wafers for some modules.

**Table 1. LiNbO<sub>3</sub> crystals boules or blanks**

Growth orientation	X,Y,Z, Y36, Y41,Y64,Y128, Y135
Diameter	2.5", 3", 4", 6" or customized
Length	<120mm
Polishing	Both end surfaces inspection polishing

Note: the customized boules are available upon request.

**Table 2. LiNbO<sub>3</sub> SAW wafers of 3", 4" and 6" diameter**

Orientation	Diameter	Thickness	Surface finish		Surface processing
			(+) plane	(-) plane	
Z-Cut	76.2mm	0.25mm	Mirror	GC1000# or	White or
X-Cut					
Y-Cut	100.0mm	0.35mm	polished	GC2000#	Pyro-free
36°Y –Cut					
41°Y –Cut	150.0mm	0.50mm			
49°Y -Cut					
64°Y –Cut					
128°Y –Cut					
135°Y –Cut					

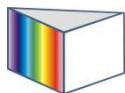
Note: The customized wafers are available upon request.

LiNbO3 Crystals Specifications	
Crystals Orientations	X,Y,Z, Y36, Y41,Y64,Y128, Y135
Orientation Fluctuation	±0.30°
Diameter	2.5", 3", 4" and 6", or customized
Length	50~100mm
Curie Temp	1142±3℃
Orientation of First Reference Flat	As required ±0.2 0
Length of First Reference Flat	32±2 mm (4 " ),22±2 mm (3 " ) inspection polished.
Second Reference Flat	Available if required, the length shall be 12±3 mm (4 " ),10±3mm(3 " )
Appearance	Free of crack, pore, inclusion

**Note:** the boules, blanks, polished wafers are available

#### Specifications for 3"/4"/5"/6" LN wafers

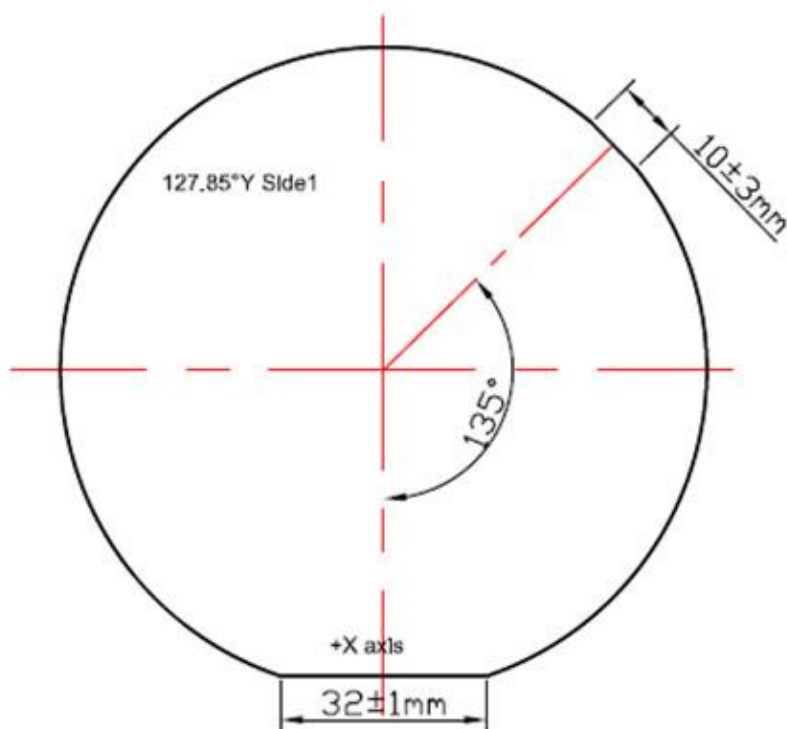
Specifications for 3"/4"/5"/6" LN wafers				
Wafer Size	3"	4"	5"	6"
Diameter(mm)	76.2	100mm	125mm	150mm
Tolerance (±mm)	0.25	0.5	0.5	0.5
Primary reference flat (mm)	22mm or customized	32.5mm or customized	42.5mm or customized	57.5mm or customized
LTV (5x5mm) (μm)	<2	<2	<2	<2
TTV (μm)	<8	<10	<15	<20
Bow (μm)	±20	±25	±40	±40
Warp(μm)	≤30	≤40	≤50	≤50
PLTV (%) (5x5mm)	≥90%	≥90%	≥90%	≥90%
Cutting Angle	X,Y,Z, Y36, Y41,Y64,Y128, Y135			
Orientation Flat	All available			
Surface Type	Single side polished/Double sides polished			
Polished side Ra (nm)	≤1			
Back Side Criteria (μm)	General is 0.2-0.5 or as customized			
Edge Rounding	Compliant with SEMI M1.2 Standard/refer to IEC62276			
Optical doped	Fe/Zn/MgO ect. For optical grade LT wafers			
Appearance	Contamination: None			
	Particles Φ>0.3μm: ≤30			
	Saw Marks, striations: None			
	Scratch: None			
	Cracks, crowsfeet, Saw marks, strains: None			



Drawing example

**4" LiNbO<sub>3</sub> 127.86°Y-cut Black Wafer for SAW Components**

**1. Dimension**



直径	Diameter	100.0mm±0.2mm
基准面	Orientation Flat (OF)	32.0mm±1.0mm
第二参考面	Second Refer. Flat (RF)	10.0mm±3.0mm
厚度	Thickness	500um ± 20um
边缘倒角	Edge bevel	Edge rounding