PMN-PT lead magnesium niobate - lead titanate

PMN-PT lead magnesium niobate-lead titanate single crystal material has the characteristics of high piezoelectric constant, large electromechanical coupling coefficient, high dielectric constant and low loss, especially the piezoelectric performance is better than ordinary The piezoelectric material should be improved by about 10 times, so that it can be used in a wider range of application fields than traditional PZT piezoelectric ceramics, such as sonar, stacked drive, ultrasonic imaging, optics, etc. It has been recognized and applied.

Material properties:

Main performance parameters	
molecular formula	[Pb(Mg 1/3 Nb 2/3)O 3] (1-x) - [PbTiO 3] x,
Crystal structure	Quartet, (nearly cubic)
Cell parameters	a=4.024 Å (R3m)
melting point	1280°C
growth method	Crucible drop method (Bridgeman method)
density	8.1 g/ cm3
Moh's hardness	3.5
Thermal expansion	10.4x10 -6 /K
Dielectric constant	4000-5500 @1KHz
Piezoelectric constant d	1200-1500;1500-2000;2000-2500 pC/N
Curie temperature	135-150℃
phase transition	50-90°C (monoclinic-tetragonal phase transition)
motor coupling constant	K33 (longitudinal mode): > 92%; Kt (transverse
Coercive electric field	2-2.5 kv/cm
Orientation	<100>, <110> ,<111>
Crystal orientation	±0.3-0.5°
size	5x5mm, 10x10mm, 20x20mm, Dia50.8mm
thickness	0.5-10mm
Package	Class 100 packaging bag, class 1000 ultra-clean