

Electromechanical Properties

PROPERTY	LEAD ZIRCONATE TITANATE											LEAD METANIOBATE				
	NAVY TYPE I			NAVY TYPE II			NAVY TYPE III			NAVY TYPE V AND VI			PKI 100		PKI 105	
	Ten Day Value		Aging % Decade	Ten Day Value		Aging % Decade	Ten Day Value		Aging % Decade	Ten Day Value		Aging % Decade	Min	Max	Min	Max
	Min	Max		Min	Max		Min	Max		Min	Max					
Curie Temperature °C		≥310°C			≥330°C				≥290°C					425		350
Dielectric Constant K_T^T	1150	1500	-3.0 -5.0	1700	2400	-0.5	950	1150	-3.0	2700	3900	-0.5	275	325	740	860
Loss Factor $\tan \delta$		0.005			0.020				0.004					0.015		0.020
Longitudinal Charge Coefficient d_{33}	275	350		350	550		220	280		500	700		75	95	160	200
Longitudinal Voltage Coefficient g_{33}													0.31	0.33	0.24	0.26
Planar Coupling Factor k_p	0.51	0.59	-2.0	0.55	0.63	-1.0	0.47	0.51	-2.0	0.63	0.67	-1.0				
Longitudinal Coupling Factor k_{33}													0.35		0.35	
Planar Frequency Constant $N_p(\text{Hz m})$	2030	2260	1.0	1920	2057	0.1	2300	2600	0.8 1.1	1943	1981	0.10				
Longitudinal Frequency Constant $\text{Hz m}, N_t$													1475	1575	1625	1725
Density $\rho (\text{kg/m}^3)$	≥7500			≥7600			≥7500			7600	7800		5800	6200	5600	5850
Mechanical Quality Factor Q_m	500			60	80		900	1000		65	75			20		20
Available Materials	PKI 409, PKI 404			PKI 502, PKI 509A, PKI 509B, PKI 509C			PKI 802, PKI 804, PKI 809			PKI 532, PKI 552 PKI 556			PKI 100		PKI 105	

Approximate range of electromechanical property values for a 1 inch diameter Powder Qualification sample disk.
Matrix values dielectric, piezoelectric, and elastic properties for FEA modeling are available upon request.