

## Piezoelectric Material



### Features

- Suitable for precision motion
- Wide range of application fields
- Vacuum compatible, not affected by electromagnetic interference
- Possesses a certain level of mechanical strength and high compressive resistance

### Description

Piezoelectric materials can generate an electric field due to mechanical deformation, and they can also undergo mechanical deformation in response to an applied electric field. This inherent electromechanical coupling effect has led to widespread applications of piezoelectric materials in engineering. For instance, active vibration damping, noise control, non-destructive testing, and ultrasound imaging, among others. Discover the precision engineering of YINGUAN Company's piezoelectric devices, meticulously crafted with state-of-the-art lead zirconate titanate (PZT) material.

Experience unparalleled accuracy in driving mechanical components, designed to deliver exceptional ultra-precision positioning for the most discerning international clients.

Elevate your projects with our cutting-edge technology.

### Technical Specifications

	Symbol	YGP-51	YGP-51A	YGP-51H	Unit
<b>Electrical property</b>					
Permittivity	$\epsilon_{33}^T$	1900	2600	4200	
Dielectric loss	$\text{tg}\delta$	<2.5	<2.5	<2.5	%
<b>Electromechanical property</b>					
Electro-mechanical coupling factor	$K_p$	0.65	0.66	0.69	
	$K_{31}$	0.37	0.39	0.42	
	$K_{33}$	0.72	0.77	0.78	
	$K_T$	0.50	0.48	0.50	
Piezoelectric Constant	$d_{31}$	-320	-220	-300	$10^{-12} \text{ C/N}$
	$d_{33}$	440	560	750	$10^{-12} \text{ C/N}$
	$g_{31}$	-11	-10	-9	$10^{-3} \text{ Vm/N}$
	$g_{33}$	17.8	22.3	16.8	$10^{-3} \text{ Vm/N}$

## Technical Specifications(Continued from previous page)

	Symbol	YGP-51	YGP-51A	YGP-51H	Unit
Frequency constant	$N_p$	2010	1980	2000	kHz·mm
	$N_t$	1950	2040	2030	kHz·mm
	$N_{31}$	1400	1400	/	kHz·mm
	$N_{33}$	1500	1350	/	kHz·mm
Physical property					
Mechanical quality factor	$Q_m$	80	90	60	
Density	$\rho$	7.74	7.85	7.75	$10^3 \text{ Kg/m}^3$
Elastic compliance	$S^{E11}$	17	16	17	$10^{-12} \text{ m}^2/\text{N}$
	$S^{E33}$	21	19	21	$10^{-12} \text{ m}^2/\text{N}$
Curie temperature	$T_c$	320	300	190	$^{\circ}\text{C}$
Process characteristic					
Sintering temperature	$T_s$	1050	1250	1050	$^{\circ}\text{C}$