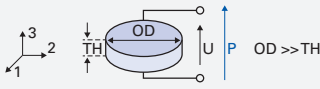


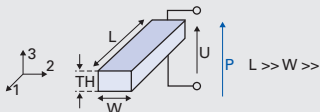
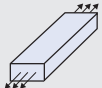
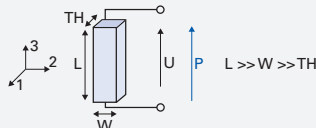

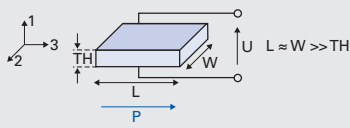
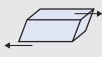
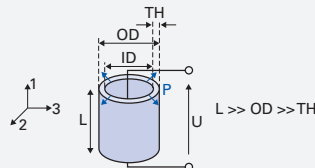




Dynamisches Verhalten

SCHWINGUNGSFORMEN VON PIEZOKERAMISCHEN KÖRPERN

Geometrie	Schwingungen			Elektrisch induzierte Auslenkung (Kleinsignal)	Mechanisch induzierte elektr. Spannung (Kleinsignal)
	Typ	mechanische Deformation	Serienresonanzfrequenz		
Scheibe  $OD \gg TH$	Radial		$f_s = \frac{N_p}{OD}$	$\Delta OD = \frac{d_{31} OD}{TH} U$	
	Dicke		$f_s = \frac{N_t}{TH}$	$\Delta TH = d_{33} U$	$U = -\frac{4g_{33} TH}{\pi OD^2} F_3$
Platte  $L \gg W \gg TH$	Transversal		$f_s = \frac{N_1}{L}$	$\Delta L = \frac{d_{31} L}{TH} U$	$U = -\frac{g_{31}}{W} F_1$
Stab  $L \gg W \gg TH$	Longitudinal		$f_s = \frac{N_3}{L}$	$\Delta L = d_{33} U$	$U = -\frac{g_{33} L}{W TH} F_3$
Scherplatte  $L \approx W \gg TH$	Dickenscher		$f_s = \frac{N_5}{TH}$	$\Delta L = d_{15} U$	$U = -\frac{g_{15} TH}{LW} F_3$
Rohr  $L \gg OD \gg TH$	Transversal		$f_s \approx \frac{N_1}{L}$	$\Delta L = \frac{d_{31} L}{TH} U$	
	Wanddicke		$f_s \approx \frac{N_t}{TH}$	$\Delta TH = d_{33} U$	