



Zone (I) - Slow phenomena:  
 $\ddot{u}$  and  $\ddot{w}$  can be neglected

Zone (II) - Moderate speed:  
 $\ddot{w}$  can be neglected

Zone (III) - Fast phenomena:  
 only full Biot eq. valid

$$\Pi_1 = k \frac{M + Q}{\omega H_T^2}$$

$$\Pi_2 = \frac{\omega^2 H_T^2 \rho}{M + Q}$$