

YouTube Class Link

3G 4G Vol LTE2 51

6:14

Relation connecting moduli of elasticity and poisson's ratio

$\Delta V = V' - V$ (1)

Volume (V) = 1

$\alpha = \frac{\Delta l}{l}$

$\beta = \frac{\Delta d}{d}$

$V' = \{1 + T(\alpha - 2\beta)\}^3$ (2)

$\sigma = F/A$

$V' = 1 + 3T(\alpha - 2\beta)$ (3)

$\Delta V = 3T(\alpha - 2\beta)$ (4)

Volume strain = $\frac{\Delta V}{V}$

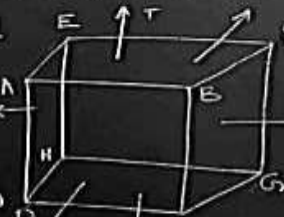
$= 3T(\alpha - 2\beta)$

$AB' = 1 + T(\alpha - 2\beta)$ (1)

$BC' = 1 + T(\alpha - 2\beta)$ (2)

$BF' = 1 + T(\alpha - 2\beta)$ (3)

New Volume (v) = $AB' \times BC' \times BF'$ (4)



ELASTICITY AND RATIO POISSON'S RATIO

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