Elastic Constant		λ	G	E	ν	K
Dimensions		FL^{-2}	FL^{-2}	FL^{-2}	1	FL^{-2}
λ	G			$\frac{G(3\lambda+2G)}{\lambda+G}$	$\frac{\lambda}{2(\lambda+G)}$	$\frac{3\lambda+2G}{3}$
	E		$\frac{A+(E-3\lambda)}{4}$		$\frac{A-(E+\lambda)}{4\lambda}$	$\frac{A+(3\lambda+E)}{6}$
	ν		$\frac{\lambda(1-2\nu)}{2\nu}$	$\frac{\lambda(1+\nu)(1-2\nu)}{\nu}$		$\frac{\lambda(1+\nu)}{3\nu}$
	K		$\frac{3(K-\lambda)}{2}$	$\frac{9K(K-\lambda)}{3K-\lambda}$	$\frac{\lambda}{3K-\lambda}$	
G	E	$\frac{G(2G-E)}{E-3G}$			$\frac{E-3G}{2G}$	$\frac{GE}{3(3G-E)}$
	ν	$\frac{2G\nu}{1-2\nu}$		$2G(1+\nu)$		$\frac{2G(1+\nu)}{3(1-2\nu)}$
	K	$\frac{3K-2G}{3}$		$\frac{9KG}{3K+G}$	$\frac{3K-2G}{2(3K+G)}$	
E	ν	$\frac{\nu E}{(1+\nu)(1-2\nu)}$	$\frac{E}{2(1+\nu)}$			$\frac{E}{3(1-2\nu)}$
	K	$\frac{3K(3K-E)}{9K-E}$	$\frac{3EK}{9K-E}$		$\frac{3K-E}{6K}$	
ν	K	$\frac{3K\nu}{1+\nu}$	$\frac{3K(1-2\nu)}{2(1+\nu)}$	$3K(1-2\nu)$		

where: $A = \sqrt{(E+\lambda)^2 + 8\lambda^2}$

Table extracted from *Introduction to the Theoretical and Experimental Analysis of Stress and Strain*, by A.J. Durelli, E.A. Phillips, and C.H. Tsao; McGraw-Hill, 1958

$E - \nu$

$$\epsilon_{xx} = \frac{1}{E}\left[\sigma_{xx} - \nu(\sigma_{yy} + \sigma_{zz})\right]$$

$$\epsilon_{yy} = \frac{1}{E}\left[\sigma_{yy} - \nu(\sigma_{zz} + \sigma_{xx})\right]$$

$$\epsilon_{zz} = \frac{1}{E}\left[\sigma_{zz} - \nu(\sigma_{xx} + \sigma_{yy})\right]$$

$$\epsilon_{xy} = \frac{1+\nu}{E}\sigma_{xy}$$

$$\epsilon_{yz} = \frac{1+\nu}{E}\sigma_{yz}$$

$$\epsilon_{zx} = \frac{1+\nu}{E}\sigma_{zx}$$

$G - \lambda$

$$\sigma_{xx} = 2G\epsilon_{xx} + \lambda(\epsilon_{xx} + \epsilon_{yy} + \epsilon_{zz})$$

$$\sigma_{yy} = 2G\epsilon_{yy} + \lambda(\epsilon_{xx} + \epsilon_{yy} + \epsilon_{zz})$$

$$\sigma_{zz} = 2G\epsilon_{zz} + \lambda(\epsilon_{xx} + \epsilon_{yy} + \epsilon_{zz})$$

$$\sigma_{xy} = 2G\epsilon_{xy}$$

$$\sigma_{yz} = 2G\epsilon_{yz}$$

$$\sigma_{zx} = 2G\epsilon_{zx}$$

$$\sigma_{ij} = 2G\epsilon_{ij} + \delta_{ij}\lambda\epsilon_{kk}$$

$G - K$

$$\sigma'_{xx} = 2G\epsilon'_{xx}$$

$$\sigma'_{yy} = 2G\epsilon'_{yy}$$

$$\sigma'_{zz} = 2G\epsilon'_{zz}$$

$$\sigma_{xy} = 2G\epsilon_{xy}$$

$$\sigma_{yz} = 2G\epsilon_{yz}$$

$$\sigma_{zx} = 2G\epsilon_{zx}$$

$$(\sigma_{xx} + \sigma_{yy} + \sigma_{zz}) = 3K(\epsilon_{xx} + \epsilon_{yy} + \epsilon_{zz})$$

$$\sigma'_{ij} = 2G\epsilon'_{ij}$$

$$\sigma_{kk} = 3K\epsilon_{kk}$$

where

$$\sigma'_{xx} = \sigma_{xx} - \frac{1}{3}(\sigma_{xx} + \sigma_{yy} + \sigma_{zz})$$

$$\sigma'_{yy} = \sigma_{yy} - \frac{1}{3}(\sigma_{xx} + \sigma_{yy} + \sigma_{zz})$$

$$\sigma'_{zz} = \sigma_{zz} - \frac{1}{3}(\sigma_{xx} + \sigma_{yy} + \sigma_{zz})$$

$$\epsilon'_{xx} = \epsilon_{xx} - \frac{1}{3}(\epsilon_{xx} + \epsilon_{yy} + \epsilon_{zz})$$

$$\epsilon'_{yy} = \epsilon_{yy} - \frac{1}{3}(\epsilon_{xx} + \epsilon_{yy} + \epsilon_{zz})$$

$$\epsilon'_{zz} = \epsilon_{zz} - \frac{1}{3}(\epsilon_{xx} + \epsilon_{yy} + \epsilon_{zz})$$

$$\sigma'_{ij} = \sigma_{ij} - \tfrac{1}{3}\sigma_{kk}\delta_{ij}$$

$$\epsilon'_{ij} = \epsilon_{ij} - \tfrac{1}{3}\epsilon_{kk}\delta_{ij}$$