AMME Formula Guide

Nidula Foneka

03/09/2020

Table of Contents

# Stress

## Tensile Stress

In Pa or where is the Force applied perpendicular to the Plane of

## Shear Stress

In Pa or where is the Force applied parallel to the plane of

# Strain

## Tensile Strain

where is the change in Length and is the Original Length

## Lateral Strain

where is the change in Width and is the Original Width

## Shear Strain

# Stress/Strain

## Hooke’s Law (Young’s Modulus)

Where is Young’s Modulus usually measured in GPa

## Poisson’s Ratio

### Data

|  |  |
| --- | --- |
| Material |  |
| Metals | ~0.33 |
| Ceramics | ~0.25 |
| Polymers | ~0.40 |

## Shear Modulus

Where is the Shear modulus.

## Relationship for Isotropic Materials

## Ductility

Also but is NOT USED. Where is where there is failiure.

## Resilience

Where is the modulus of resilience and is the point of yielding. When a linear stress-strain curve is assumed:

## True Stress/Strain

#### Assuming same volume (Before necking)