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# maximumstress

Computes the strength ratio of a unidirectional lamina based on maximum strain theory

## Inputs

**angle** - Angle of ply in degrees  
**stress\_glo** - [sx;sy;txy]  
    **sx** - Global longitudinal stress  
    **sy** - Global transverse stress  
    **txy** - Global in-plane shear stress  
**strength** - [s1tu s1cu s2tu s2cu s12u]  
    **s1tu** - Ultimate longitudinal tensile strength  
    **s1cu** - Ultimate longitudinal compressive strength  
    **s2tu** - Ultimate transverse tensile strength  
    **s2cu** - Ultimate transverse compressive strength  
    **s12u** - Ultimate in-plane shear strength

## Outputs

**SR** - Strength Ratio of unidirectional lamina

## Calling the Function

[SR]=maximumstress(stress\_glo,angle,strength)

## Testing File

Click [here](#) to see a testing file for using the function maximumstress

## Example

Inputs:

Longitudinal Global Stress: 748600  
Transverse Global Stress: -1.157e+06  
In-Plane Global Shear Stress: 2.306e+06  
Ultimate Longitudinal Tensile Strength: 1.26e+09  
Ultimate Longitudinal Compressive Strength: 2.5e+09  
Ultimate Transverse Tensile Strength: 6.1e+07  
Ultimate Transverse Compressive Strength: 2.02e+08  
Ultimate In-Plane Shear Strength: 6.7e+07  
Angle of Lamina: 60

Outputs:

Strength Ratio for Lamina

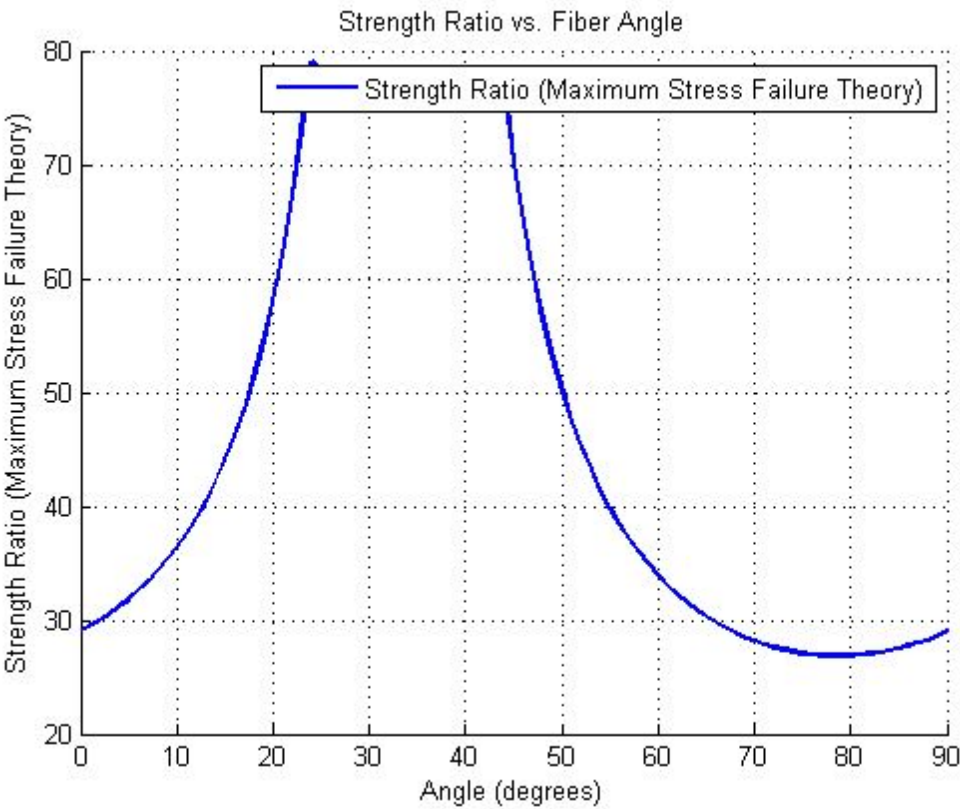
SR | 33.87

Table:

Angle Lamina Strength Ratio

| angle | SR      |
|-------|---------|
| 0     | 29.0546 |
| 10    | 36.3922 |
| 20    | 58.0564 |
| 30    | 75.4392 |
| 40    | 76.4972 |
| 50    | 50.0464 |
| 60    | 33.8700 |
| 70    | 28.1637 |
| 80    | 26.8773 |
| 90    | 29.0546 |

Graph:



## **Description**

Outputs strength ratio for a unidirectional lamina based on maximum strain theory