what is the dimension formula of modulus of rigidity?

Answer:

In materials science, shear modulus or modulus of rigidity, denoted by G, or sometimes S or μ, is defined as the ratio of shear stress to the shear strain:

$$G = \frac{\tau_{xy}}{\gamma_{xy}} = \frac{F/A}{\Delta x/l} = \frac{Fl}{A\Delta x}$$

where

$\tau_{xy} = \frac{F}{A}$ = shear stress;

F is the force which acts,

A is the area on which the force acts

$\gamma_{xy} = \frac{\Delta x}{l} = tan\Theta$ = shear strain.

Δx is the transverse displacement

l is the initial length

In SI Δx and l are in units of length $[L]$

Force F is measured in Newton =$[MLT^{-2}]$

Area in in units of square length $[L^2]$

Thus, formula for modulus of rigidity become:

$$G = \frac{Fl}{A\Delta x} = \frac{[MLT^{-2}][L]}{[L^2][L]} = [ML^{-1}T^{-2}]$$

Answer: $\boldsymbol{[ML^{-1}T^{-2}]}$