

Elasticity

Introduction of Elasticity

Elasticity is a branch of physics which deals with the elastic property of materials. When an external force is applied to a body, there will be some change in its length, shape and volume. When the external force is removed, if the body regains its original shape and size, then the body is said to be a perfectly elastic body.

If the body does not regain its original shape (or) size, after the removal of the applied force, then it is said to be a perfectly plastic body. In nature no body is perfectly elastic (or) perfectly plastic.

Therefore elasticity is the property of the body by virtue of which it tends to regains its original shape (or) size after the removal of deforming forces applied externally to it.

1.1. Fundamental definitions

1.1.1. Deforming force

The force which changes or tries to change the shape or size of a body without moving it as a whole is called deforming force.

1.1.2. Elasticity

Elasticity is the properties of solid material to regain their original shape or size after remove the deforming force acting on it.

Example: Rubber, a fibre of quartz crystal.

- Elasticity is the molecular property of matter.
- It is different in different materials.

1.1.3. Plasticity

If the body does not regain its original shape and size, when the applied force is removed, then it is a perfect plastic body. This property is called plasticity.

Example: Putty, Wood, Mud.