In mechanics, **compression** is the application of balanced inward ("pushing") forces to different points on a material or structure. It is contrasted with **tension or traction**, the application of balanced outward ("pulling") forces; and with **shearing** forces, directed so as to displace layers of the material parallel to each other.

The compressive strength of materials and structures is an important engineering consideration.

In **uniaxial compression** the forces are directed along one direction only, so that they act towards decreasing the object's length along that direction. The compressive forces may also be applied in multiple directions; for example inwards along the edges of a plate or all over the side surface of a [cylinder](https://en.wikipedia.org/wiki/Cylinder_(geometry)), so as to reduce its [area](https://en.wikipedia.org/wiki/Area) (**biaxial compression**), or inwards over the entire surface of a body, so as to reduce its [volume](https://en.wikipedia.org/wiki/Volume).

In a solid, the amount of compression generally depends on the direction {\displaystyle x}, and the material may be under compression along some directions but under traction along others. If the stress vector is purely compressive and has the same magnitude for all directions, the material is said to be under **isotropic** or **hydrostatic compression** at that point. This is the only type of static compression that liquids and gases can bear.

**Effects**

When put under compression (or any other type of stress), every material will suffer some deformation, even if imperceptible, that causes the average relative positions of its atoms and molecules to change. The deformation may be permanent, or may be reversed when the compression forces disappear. In the latter case, the deformation gives rise to reaction forces that oppose the compression forces, and may eventually balance them.

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