

DEFORMATION DEPENDS ON SURFACE AREA

MED 14.02



Material

Item-no.	Qty.	Description
DM375-1G	1	Weight, 1 kg
DG420-1H	1	Foam block 150 x 100 x 50 mm

DEFORMATION DEPENDS ON SURFACE AREA

MED 14.02

Purpose

To demonstrate that the deformation that a force causes is depending on the surface area on which it acts.

This varying effect of the same forces is described by the term pressure ($= \text{force} / \text{area}$).

Experiment

Fix the metal cylinder to the bottom end of the support rod as shown on the image to the left.

Position the weight with the “big” area on the foam block.

Now move the cylinder a bit more to the centre of the support rod as shown on the image to the right and fix it there with the screw.

Now position the weight with the “small” cm^2 -area on the foam block.

Result

The difference between force and pressure can clearly be observed.

Note

Of course you can also use other materials such plasticine for example.
When using harder materials such as softwood the same force can exerted over even smaller areas.

Even with very large forces acting (excavators, tanks, elephants,...) the pressure can be relatively small if they are spread over a large area.

