



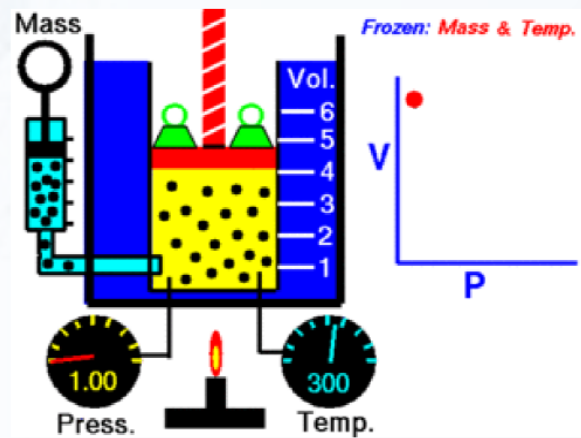
Mechanical Concept Fluid

Equations of State (vary under extreme conditions)

Relationship between **P**ressure, **T**emperature, **M**ass and **V**olume

$$\rho V = nRT$$

(Ideal gas law)



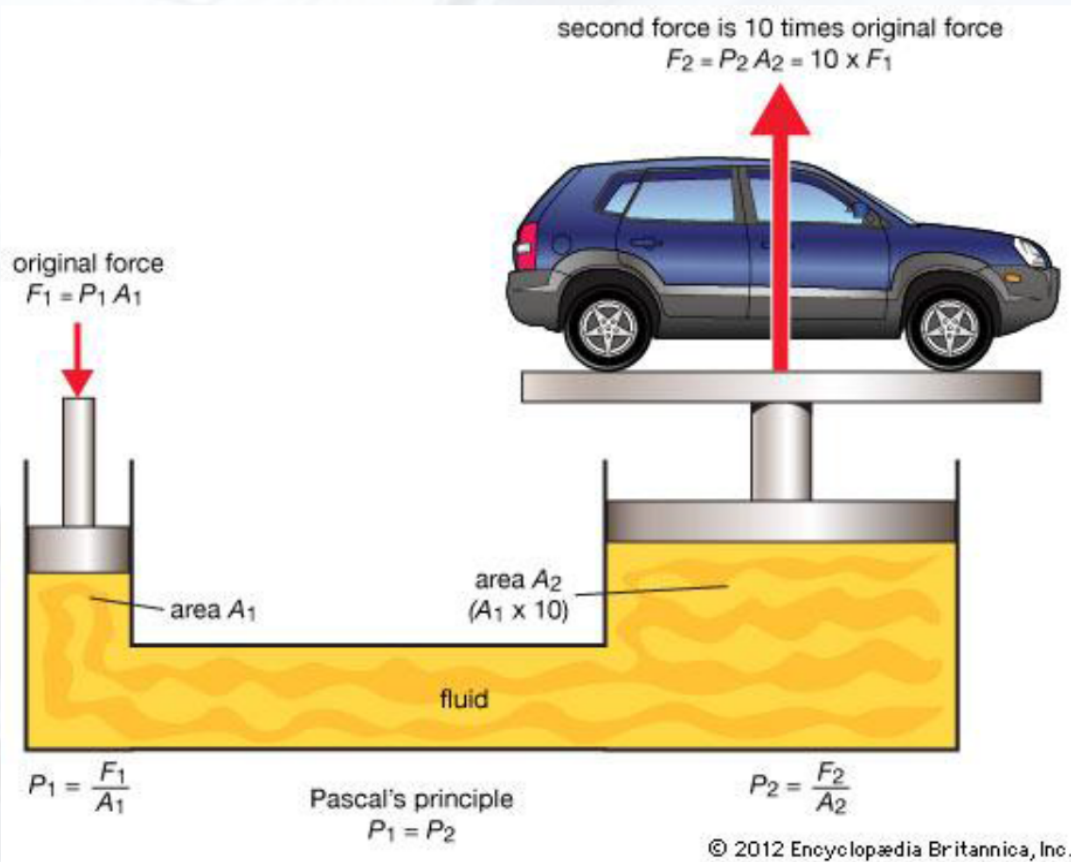
http://en.wikipedia.org/wiki/Boyle's_law

Mechanical Concept

Fluid – Mechanical Advantage



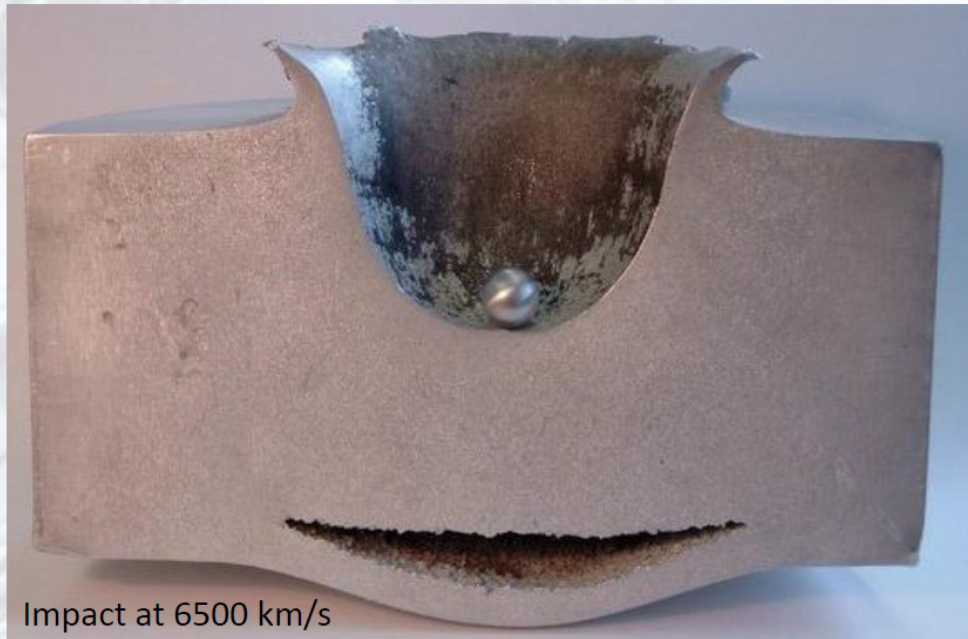
University of
South Australia



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Mechanical Concept Fluid

Mie-Gruneisen – (Temperature and Pressure) in shocked solids



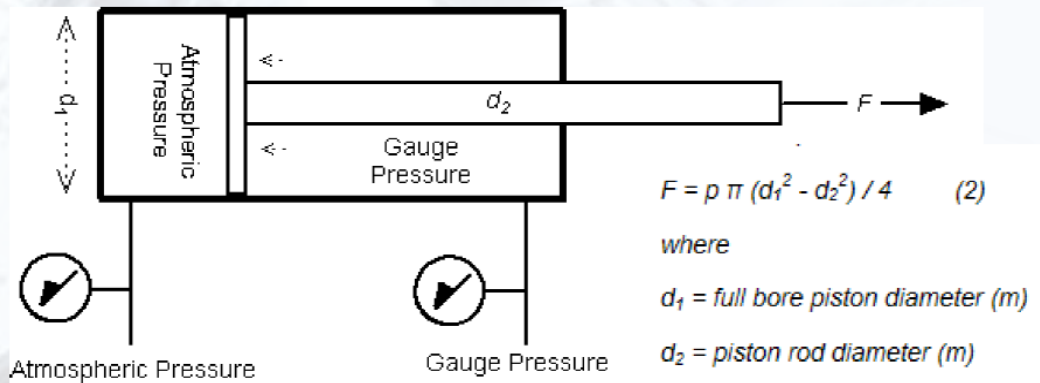
Impact at 6500 km/s

<http://www.mdpi.com/1422-0067/10/12/5135>



Mechanical Concept Fluid

2 litre soda bottle limited to 120Psi (8 bar, 0.8 MPa)



http://www.engineeringtoolbox.com/pneumatic-cylinder-force-d_1273.html

$d_1 = 0.02\text{m}$
 $d_2 = 0.005\text{m}$
 $P = 0.8\text{ MPa}$

$$F = 800000 * \pi \frac{(.02^2 * .005^2)}{4} = 240\text{ N}$$