

Pascal's Law (Working of hydraulic lift)

It states that if gravity effect is neglected, the pressure at every point of liquid in equilibrium of rest is same.

or

The increase in pressure at one point of the enclosed liquid in equilibrium of rest is transmitted equally to all other points of the liquid and also to the walls of the container, provided the effect of gravity is neglected.

Example : Hydraulic lift, hydraulic press and hydraulic brakes

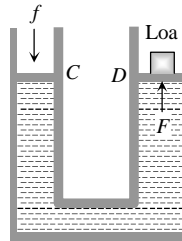
Working of hydraulic lift : It is used to lift the heavy loads. If a small force f is applied on piston of C then the pressure exerted on the liquid

$$P = f / a \quad [a = \text{Area of cross section of the piston in } C]$$

This pressure is transmitted equally to piston of cylinder D .

Hence the upward force acting on piston of cylinder D .

$$F = P A = \frac{f}{a} A = f \left(\frac{A}{a} \right)$$



As $A \gg a$, therefore $F \gg f$. So heavy load placed on the larger piston is easily lifted upwards by applying a small force.