

## HYDROSTATIC PRESSURE AND ITS PROPERTIES

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**Abstract:** *Hydrostatics is a branch of hydraulics that studies the laws of equilibrium of fluids. The study of these laws is of great importance in solving problems related to the transmission of forces through liquids, in addition, hydrostatics studies the laws of equilibrium of a solid body completely or partially immersed in liquids.*

**Key words:** *hydrostatics, pressure, properties of pressure, velocity, slope, cross-sectional area, damped perimeter.*

### INTRODUCTION

Hydrostatics is a branch of hydroaeromechanics that studies fluid equilibrium and the effect of a quiescent fluid on a body immersed in it. One of the main issues is the distribution (distribution) of pressure in the liquid. Based on the laws of hydrostatics, knowing the distribution of pressure, it is possible to calculate the forces exerted by a still liquid on bodies immersed in a liquid, for example, a submarine, a dam wall. In particular, it is necessary to determine the conditions for the bodies to float on and inside the liquid surface, as well as the priority conditions of the floating bodies. This is important in shipbuilding. Hydraulic press, hydraulic accumulator, liquid manometer, siphon, etc. the operation of machines and tools is based on the laws of hydrostatics, particularly Pascal's law. One of the main laws of hydrostatics is Archimedes' cone, which determines the magnitude of repulsive forces acting on bodies immersed in liquids and gases.

$p = F/S$  will be  $F$ - field strength and  $S$  . In other words, the formula to find the pressure is its force divided by the surface area of the movement.

Forces acting on liquids are divided into internal and external forces depending on the method of application. External forces represent the effect of other objects on the liquid, for example, the effect of the walls of the liquid container, air pressure acting on the open surface, etc. Internal forces arise as a result of the interaction of fluid particles. Internal forces are invisible as resistance to displacement forces and are called internal frictional forces. External forces can be seen as forces acting on a surface. Therefore, forces acting on fluids are either surface area or volume. divided into surface forces and mass forces depending on the effect. Surface forces are the forces acting on the surface of the fluid in

question. These include pressure force, surface tension force, internal friction force, and reaction forces of the wall of the liquid container.

The force of internal friction is created when the liquid moves and the property of viscosity occurs. Mass forces act on each particle of the fluid in question and are proportional to its mass. In hydraulics, mass forces are expressed as forces acting on a unit mass, representing the ratio of mass to volume.

One of the main forces affecting liquids is hydrostatic pressure. The force  $R$  acting on the observed surface  $S$  is called the hydrostatic pressure force or hydrostatic force. The force  $R$  is the external force relative to both parts, and the internal force relative to the entire volume. The ratio of the force  $R$  to the surface  $S$  is called the average hydrostatic pressure.

Hydrostatic pressure is the weight of the fluid and the pressure applied to the surface of the fluid. Types of hydrostatic pressure - Thus, the pressure is caused by the weight of the liquid and external pressure. If the liquid piston is lowered and a force is applied to it, then of course the pressure of the liquid will increase. Under normal conditions, atmospheric pressure will pressurize the liquid. If there is pressure on the surface of a liquid under atmospheric pressure, it is called a pressure gauge. All the fluid will be in equilibrium if the pressure forces acting on any sufficiently small volume of the fluid are balanced with each other.

Summary. In the above article, we gave several examples of hydrostatic pressure and its properties. We also study hydrostatic pressure in hydraulics. Pressure has several properties

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