

Glossary of Pump Engineering Terminology

Absolute Pressure

Is the pressure above absolute zero, and is equal to the barometric (atmospheric) pressure plus the gauge pressure.

Air Locked

A condition occurring when a centrifugal pump body is filled with air and a vacuum can no longer be formed allowing water to flow into the pump.

Barometric Pressure

Is the atmospheric pressure at the altitude where it is measured.

Discharge Hose

A collapsible hose used to move the water discharged from the pump.

Cavitation

Is a phenomenon causing vacuum pockets to form within the pump that eventually implode under pressure pitting the impeller and volute surfaces.

Dewatering

The removal of unwanted water (clear or dirty) but free from hazardous materials.

Diffuser

A stationary housing similar to a volute in which the impeller rotates enabling the pump to produce higher heads.

Drain Plugs

Removable plugs used to drain water from the pump during periods of inactivity or at service intervals.

Flapper Valve

Rubber moulded around a steel weight that seals off the inlet or outlet preventing water from either entering or exiting the pump at the wrong time of the cycle.

Flowrate

Flowrate (Q) is the flow (volume of liquid per unit of time) delivered by a pump through the outlet, normally expressed in litres per second (L/s).

Foot Valve

A check valve placed in the water source below a surface pump to prevent loss of liquid and loss of prime in the pump.

Friction Loss

Refers to reductions in flow due to turbulence as water passes through hoses, pipes, fittings and elbows.

Gauge Pressure

Is the pressure measured by a gauge and is the pressure above atmospheric pressure at the altitude being considered.

Net Positive Suction Head

NPSH is a type of pressure at the inlet of a pump. It is used by pumping system designers to determine whether or not a pump will cavitate. NPSH Available (NPSHA) is calculated as the Total Head in a liquid at the pump suction (in metres water, ABSOLUTE Pressure) minus the Vapour Pressure of the liquid. Vapour Pressure varies with temperature and is usually found in tables. NPSH Required (NPSHR) is determined by the pump design and the operating condition selected and is provided by the pump manufacturer. To avoid cavitation the NPSHA has to be greater than the NPSHR.

Priming

The process of initially filling the suction pipe and intake of a surface mounted pump. Priming is generally necessary when a pump must be located above the water source. To prime, a suction line will require the installation of a foot valve.

Pump Housing

The pump body or casing. Depending on the design may be made of plastic, aluminum, cast-iron or stainless steel.

Self Priming

The ability of a pump to purge air from inside its system and creating an area of low pressure that permits water to flow into the pump casing. Centrifugal Self Priming pumps will require an initial charge of liquid to cover the impeller for self priming to occur.

Strainer

A fitting at the end of the suction hose that prevents solids larger than the pump is capable of passing from entering.

Strain Relief Protector

A support that prevents the electrical cord of a submersible pump from being accidentally pulled out of the casing.

Suction Hose

A reinforced hose through which water flows into the suction end of a pump.

Total Dynamic Head

Total dynamic head (sometimes called differential or generated head) is a measure of the energy imparted to the liquid by the pump, and is equal to the algebraic difference between the total discharge head and the total suction head. Total dynamic head, where suction lift exists is the sum of the total discharge head minus the total suction head.

Vacuum

Is any pressure below atmospheric and is a negative gauge pressure.

Water Hammer

Energy transmitted from a sudden stoppage in the flow of water out of the pump.

Wear Plate

A replaceable steel insert that fits inside the volute or suction cover of a pump. Helps to form a vacuum with the impeller and reduce the cost of replacement parts