



Glossary of Pumping Terms

Pump Components

Impeller

The rotating component that imparts velocity and pressure to the fluid.

Open Impeller

Vanes are attached to a central hub with no shroud; ideal for slurries and solids.

Closed Impeller

Vanes are enclosed between two shrouds; used for clean liquids.

Vane

Blade-like structure on the impeller that directs fluid movement.

Mechanical Seal

A device that prevents leakage along the pump shaft.

Seal-less Pump

Pump designs that do not use traditional seals (e.g., magnetic drive, canned motor).

Magnetic Drive Pump

A pump that uses a magnetic coupling to drive the impeller without a physical shaft seal.

Diaphragm Pump

A positive displacement pump that moves fluid using a flexing diaphragm.

Peristaltic Pump

Pump that moves fluid by compressing a flexible hose with rotating rollers.

Submersible Pump

Designed to operate while submerged in the pumped fluid.

Performance Metrics

Flow Rate

The volume of fluid a pump moves over time, typically expressed in L/min, m/h, or GPM.

Head

The energy or pressure generated by a pump, measured in meters or feet.

Total Dynamic Head (TDH)

The total head a pump must overcome, including static head, friction loss, and discharge pressure.

Static Head

The vertical height difference between the source and discharge point.

Dynamic Head

The portion of head related to fluid velocity and elevation.

Best Efficiency Point (BEP)

The point on a pump curve where it operates most efficiently.

Pump Curve

Graph that shows pump performance across various flow and head values.

System Curve

A plot of the system's resistance (head vs flow), used to match with the pump curve.

Net Positive Suction Head (NPSH)

- NPSHa: The actual pressure at the pump suction.
- NPSHr: The minimum pressure the pump needs to avoid cavitation.

Affinity Laws

Equations that show how flow, head, and power change with speed or impeller size.

Viscosity

A measure of a fluid's resistance to flow, which affects pump efficiency.

System Design & Operation

Suction Lift

The vertical distance the pump must lift fluid from the source to the pump inlet.

Flooded Suction

Configuration where fluid flows to the pump by gravity (source above pump).

Priming

Filling the pump and suction line with liquid to expel air before starting.

Self-Priming Pump

A pump designed to evacuate air and begin pumping without manual priming.

Backflow

Unintended reverse flow of fluid, typically prevented with check valves.

Slurry

A mixture of liquid and solid particles, often abrasive and difficult to pump.

Cavitation

Formation and collapse of vapor bubbles in the liquid, causing damage to pump internals.