Cheshire Pump Company Ltd

Tech Talk 2 - Terminology

To avoid confusion when working with pump suppliers or other advisors we recommend using the following terminology

Use SI units where practical, the most common units used are:-

Q - Flow rate	Litres per second (L/s), Litres per minute (L/m), Metres cubed per hour M^3/Hr
H - Pressure	Metres (Mwg - metres water gauge) or Mwc - metres water column, bar
Temperature	Degrees Celsius ºC
Velocity	Metres per second (M/s)
Power	Kilowatts (Kw), Watts
Density	Kilograms per cubic metre (Kg/M^3)
Viscosity	Kinematic (m^3/s)
Viscosity	Kinematic Stoke (St) centistokes (cSt) Generally, pump manufacturers will use mm^2/s 1cSt = 1mm^2/s
Viscosity	Dynamic (Kg/m,s)
Viscosity	Dynamic, Poise (P) centipoise (cP) ***A Kinematic viscosity of greater than 1cSt will affect pump performance by lowering the pump QH curve (more at higher flows than lower flows),it also raises the power curve and lowers the efficiency curve downwards***
Static head	The difference in height between the fluid levels in a pumped system, also known as geodetic head (h Geo). NB It is crucial to understand where these levels are taken from and that it may be a variable value.
Suction pressure	The pressure in a system that is imparted onto the suction inlet side of a pumped system. This may be negative value
Friction loss	The losses induced into a pumped system by pipework dimensions, layout, condition, materials of construction and flow rate
Total head loss	The combination of the suction pressure, static head, friction loss and other system corrections such as viscosity, density, temperature and velocity
Free standing	General term for a pump that is not fixed or using a guide rail system, typically small submersible sump pumps
Guide rail system	A system using fixed rigid pipework connected to a casting located in the wet well of a submersible installation. Guide rail / s are extended from the casting to ground level allowing the pump and cabling to be withdrawn without dismantling any pipework
NPSH	**N**ett **P**ositive **S**uction **H**ead. This value has two parts, “available” (NPSHa) and “required” (NPSHr).

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NPSH**a**	The difference between the measured pressure in the suction pipe and a liquid's vapour pressure it is defined in M. It is calculated value
NPSH**r**	Pump manufacturers will state the NPSHr value on their performance curves where it is considered important. As with most hydraulic factors the greater the flow rate the greater the importance of effects such as NPSHr. NPSHr is the local pressure drop created at the impeller tip ***NPSHa must always be greater than NPSHr to avoid cavitation***
Cavitation	The energy released when bubbles form then collapse in a fluid. Cavitation will cause the erosion of pump hydraulic components. It will also cause vibration, noise and undermine pump performance
Wet Well	May also be known as a sump. The chamber that holds the bulk of the fluid in a pumped system. This may have submersible pumps installed in it or it may be feeding an adjacent Dry Well
Dry Well	A dry chamber adjacent to a wet well. The dry well may contain various items of equipment such as pumps, valves, pipework, controls, monitoring equipment, and telemetry system.
Close Coupled	A centrifugal end suction pump that has the motor fixed directly to the pump casing usually using a common shaft – tends to be smaller sizes
Long Coupled	A centrifugal end suction pump that has the pump end, seal housing, coupling and motor as separate components usually mounted on a common base plate – tends to be larger sizes
Magnetic Drive	(Mag' drive) A method of coupling a centrifugal pump to its drive without the need for a shaft and seal assembly that extends through the pump casing. Extremely strong magnets drive the impeller. Ideal for use with corrosive, toxic or dangerous fluids where seal failure would be a major issue
Mechanical Seal	A sealing device providing a secure barrier between a pumped fluid and the environment. There are many different types of mech' seal and they should use a design and materials suited to the application. Double mech' seals, cooled, flushed, oil lubricated and submersible types are all common
Floatswitch	A mechanical switch inside a submersible casing with a cable. The floatswitch will make or break contact as a fluid level causes it to rise or fall. Old versions may contain Mercury, modern versions use a micro switch