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# Phenomena in Pumping processes

## Cavitation

Is a phenomenon that occurs when the pressure of the liquid drops below its vapor pressure, causing the formation of bubbles or vapor cavities in the liquid. These bubbles form in areas of low-pressure, imploding once they move to areas of high pressure, this collapse of the bubbles creates shock waves and has a destructive effects on the surrounding components.

Cavitation can cause erosion, wear and pitting in the impeller, noise and vibration. If strong cavitation occurs, pump performance decreases, leading to a pumping failure.

To prevent cavitation, it's important to design and operate pumping systems properly. This may involve selecting the correct pumps for a specific application, making sure piping and components are properly sized, and maintaining a constant flow of liquid to avoid the formation of low-pressure zones.

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## Water hammer

It's an abnormally large pressure wave in the pipe produced when flow velocity changes in a short period. The above may be due a rapid closed of a valve for water feed piping, or when a pump is rapidly started or stopped.

With this phenomenon, an abnormal rise in pressure occurs and causes loud noise due to resonance in the pipe, which may result in damage to equipment (pipe, valves, pump, etc.).