



Know all about PUMP CAVITATION & How to prevent it.....!

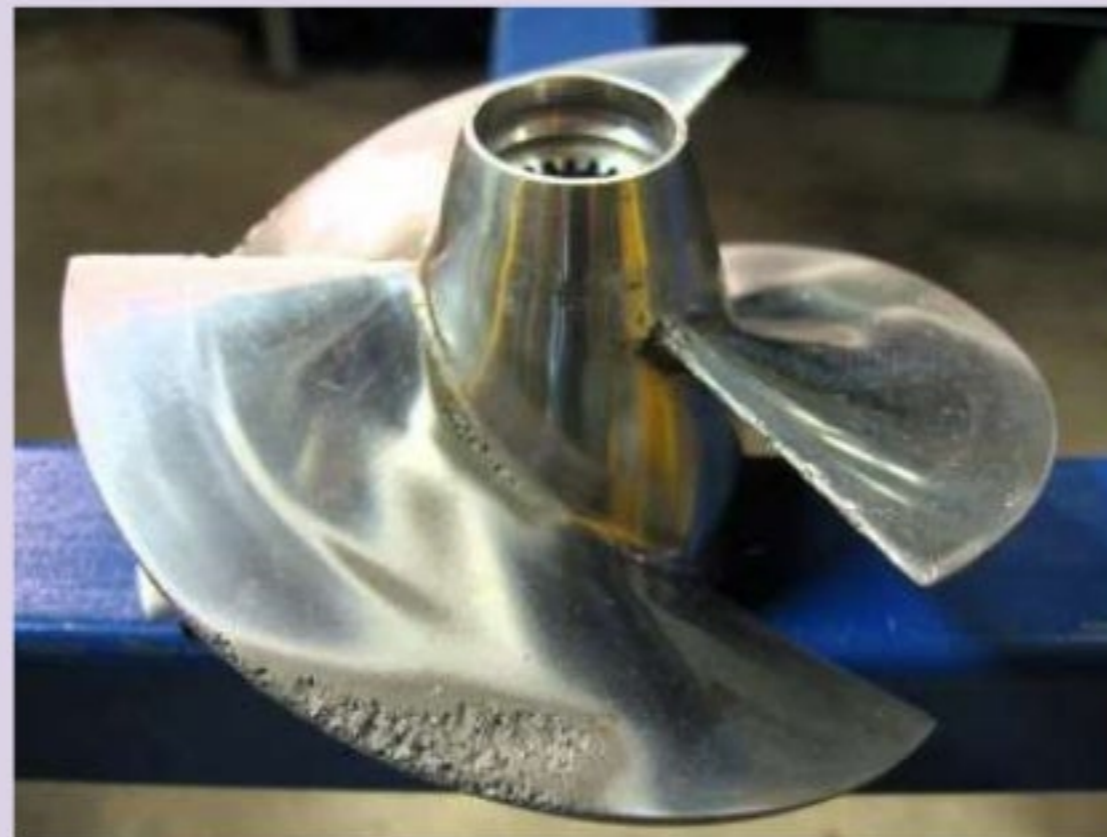
Cavitation in pumps is the rapid creation and subsequent collapse of air bubbles in a fluid.



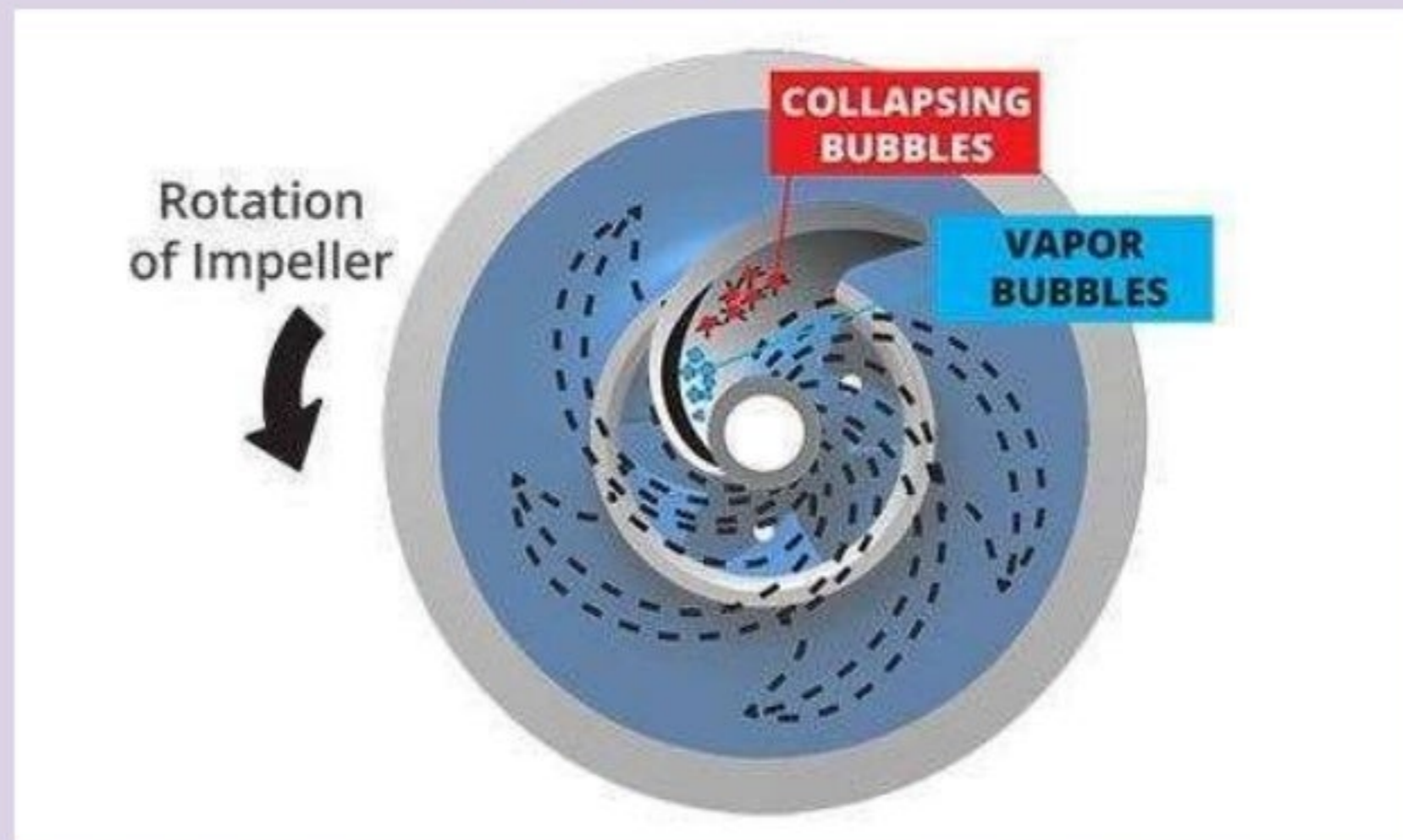
Technically ↓

When the Net Positive Suction Head Available (NPSHa) is lower than the Net Positive Suction Head Required (NPSHr), cavitation will begin to occur.

In many cases, the force of cavitation is strong enough to pit metal components of the pump, like the impeller, and damage pump seals.

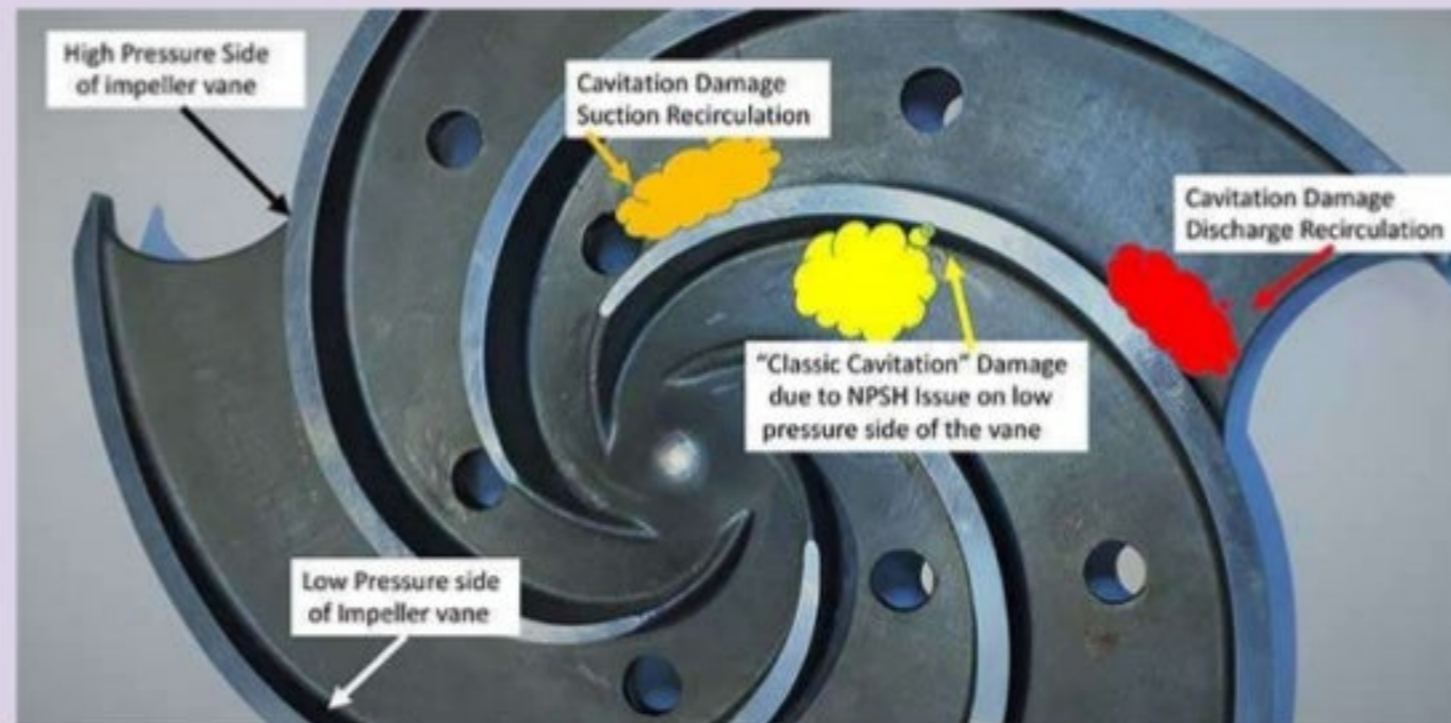


WHY DOES PUMP CAVITATION OCCUR?



- **The inlet, or suction side of a pump is the point of lowest pressure in a given pump.**
- **Fluid is drawn into the eye of the impeller and the rotation of the impeller begins to act on the fluid.**
- **When pressure acting on the liquid (Net Positive Suction Head Available) is too low, bubbles form, and as the liquid accelerates because of impeller rotation, pressure increases and the bubbles collapse.**

- As the pressure inside the pump falls below the liquid's vapor pressure, bubbles form.
- In the case of cavitation, this formation and collapse is both rapid and violent.
- Fall in suction or discharge pressure leads to cavitation.



POOR PUMP INLET CONDITION

- Excessively long inlet piping
- Higher than expected fluid viscosity
- Clogged inlet
- Clogged filters and strainers
- Restricted or collapsed inlet hoses
- Poorly specified pump



DISCHARGE CAVITATION



At extremely high discharge pressure, some fluid circulates inside the pump instead of discharging. Fluid trapped between impeller and housing at very high velocity cause a drop in pressure.

HOW TO RECOGNIZE PUMP CAVITATION



The effects of prolonged cavitation are visible on the pump impeller and other components.

- **Noise**
- **Vibration**
- **Seal/bearing failure**
- **Impeller erosion**
- **Higher power consumption**



HOW TO PREVENT PUMP CAVITATION



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surface protection

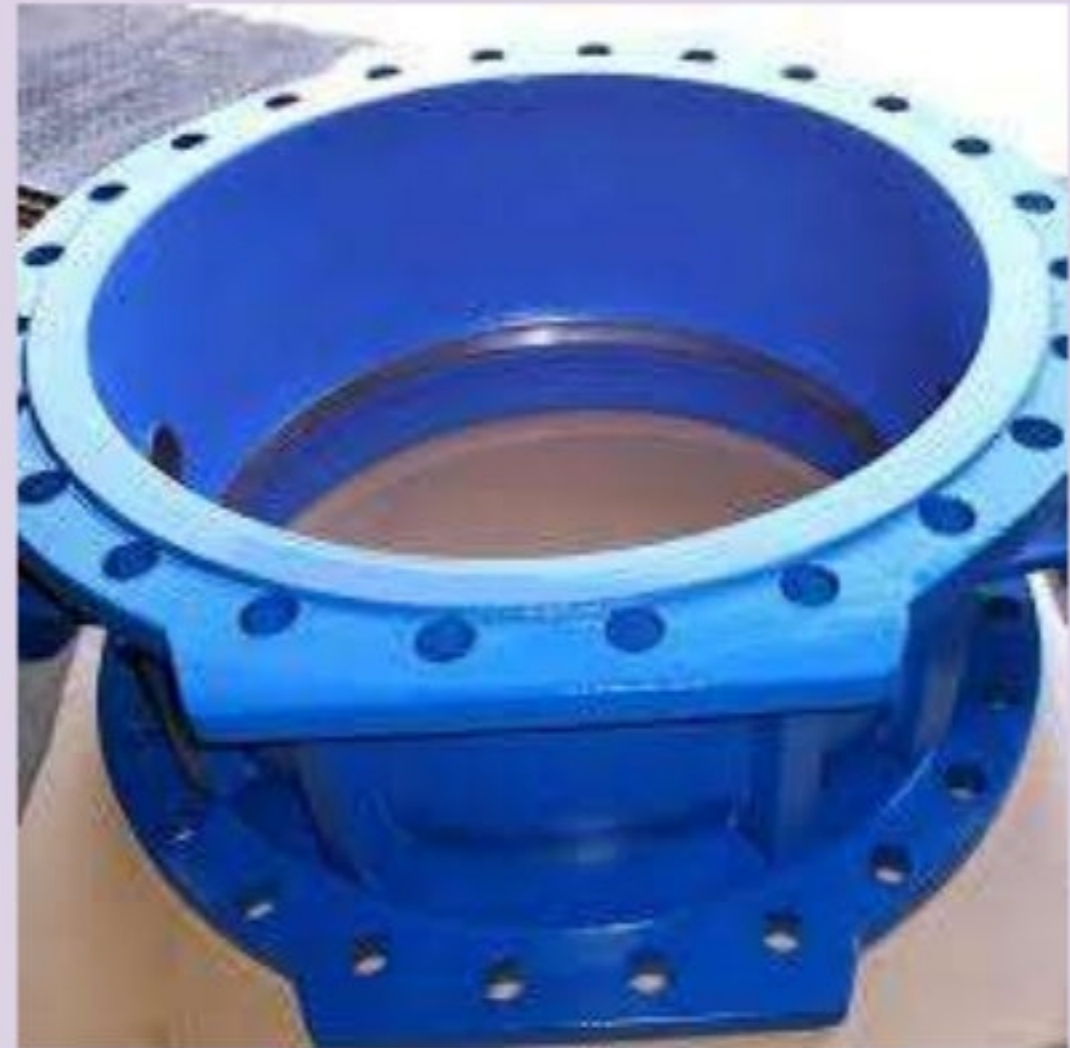


MetaLine Series 700 - Technical Solution

- Optimize pump efficiency owing to their very smooth, flow-optimized surfaces.
- Efficiency increases of more than 3 %.
- Service life extension (wear protection optimization).
- Coating serves as a wear layer to protect the original material and its static behavior.
- This wear layer may be renewed if needed for a low cost. However the housing's original strength and geometry remains fully intact.
- With minimal effort, existing change parts can be fully regenerated again. The cost savings compared to new parts procurement are significant.

Protective coatings from MetaLine

- Long Lasting
- Non-Stick Formula
- Cost Effective
- High Maintenance



**Vacuum pump
successfully repaired**
In a combined
molding & spraying
application with
MetaLine 785 giving
it double its life time



Scope of application

- Centrifugal pumps
- Spiral pumps
- Vertical inline pumps
- Axial split case pumps
- Sewage pumps
- Submersible pumps
- Seawater pumps
- Cellular wheel sluices
- Rubber semi-shells



Like new – after 12 months of operation
only the color changed a bit !





THANK YOU

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