



The Pump Detective

By Doug Kriebel

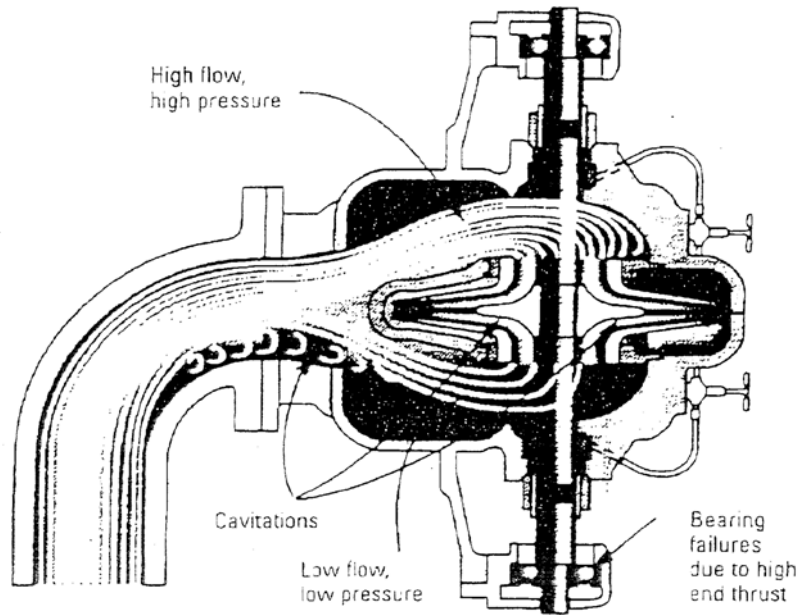
The case of the poorly performing (piped) pump:

A customer started up a new pump and complained it was not meeting its performance curve. This in spite of the fact that the pump was factory tested and certified. A visit to the site showed:



As the right edge of the picture shows, the pump's suction piping had a horizontal elbow immediately before the pump.

Horizontal elbows on pump suction, ESPECIALLY double suction pumps, are not recommended. This is poor piping practice and not in accordance with HI guidelines. The sketch shows how the liquid is distributed unevenly to the two impeller eyes.



The out board end gets more flow due to the centrifugal force pushing the water to that side and the inboard side gets less flow. This creates flow instability and sometimes cavitation. Besides affecting performance, it will cause uneven pressure distribution and nullify the axial thrust balance of a double suction impeller. This will cause premature bearing failure due to excessive axial thrust.

If we had not been called for performance issues, we would eventually been called for poor bearing reliability!

This is not uncommon as seen by the second picture of a 2500 HP multistage pump with a double suction impeller and horizontal elbow, dooming it to very low reliability. But that is for future "Pump Detective"

