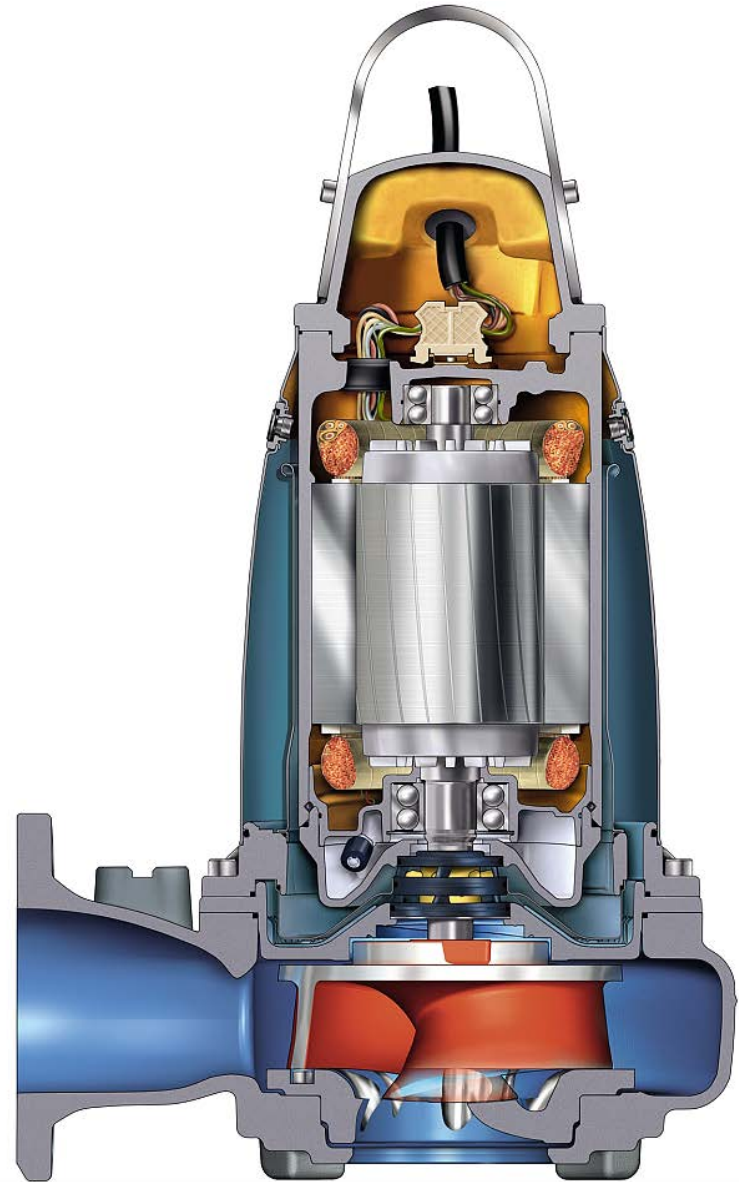


10 Ways to Murder Your Pump

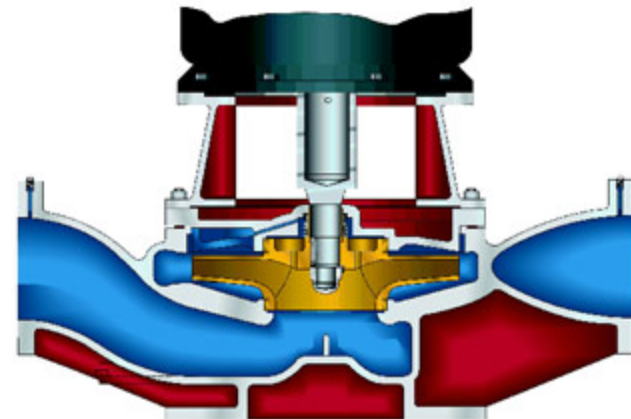
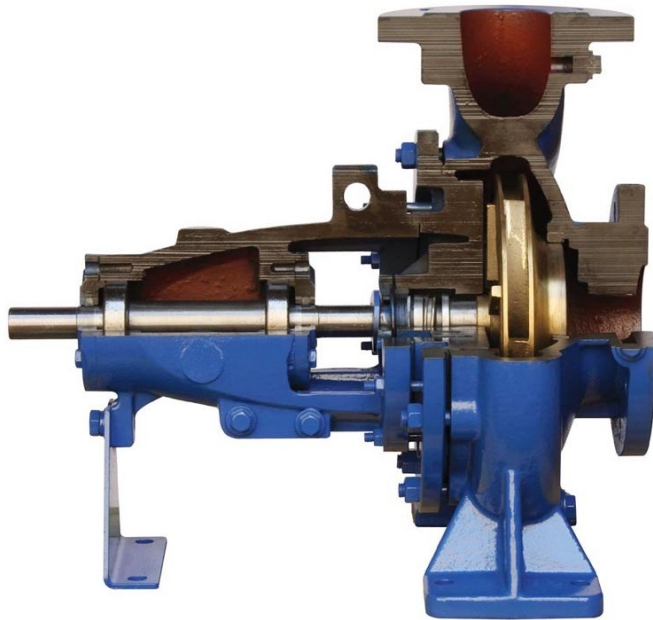


OWWA Annual Conference
May 6, 2014

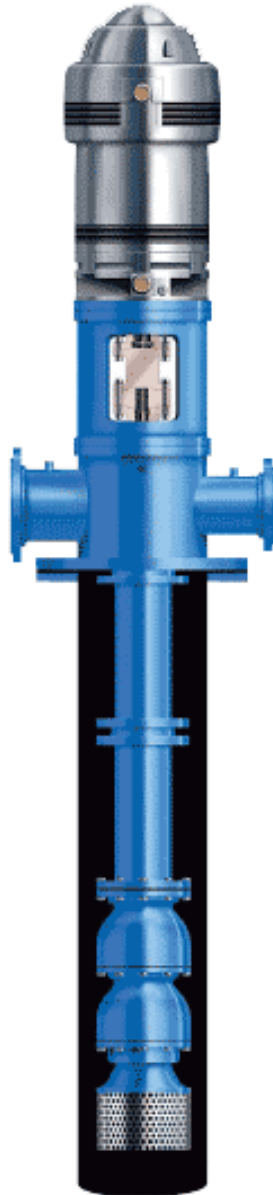
Submersible Sewage Pumps



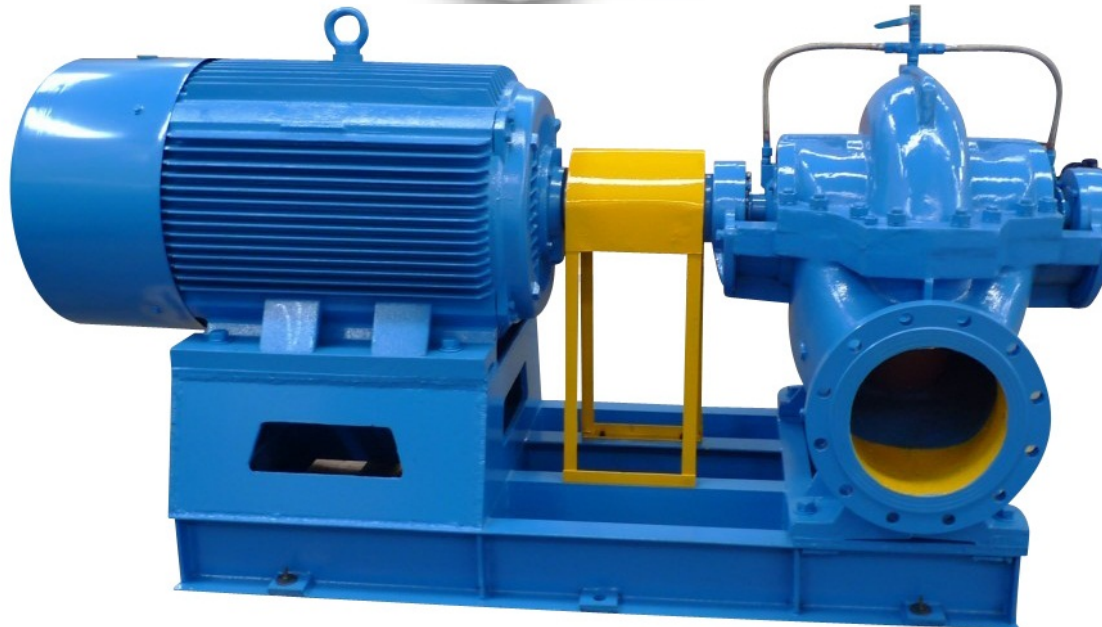
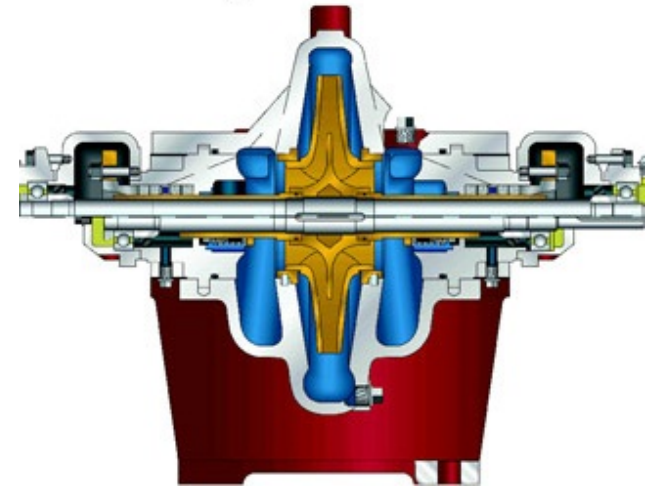
End Suction Pumps



Vertical Turbine Pumps



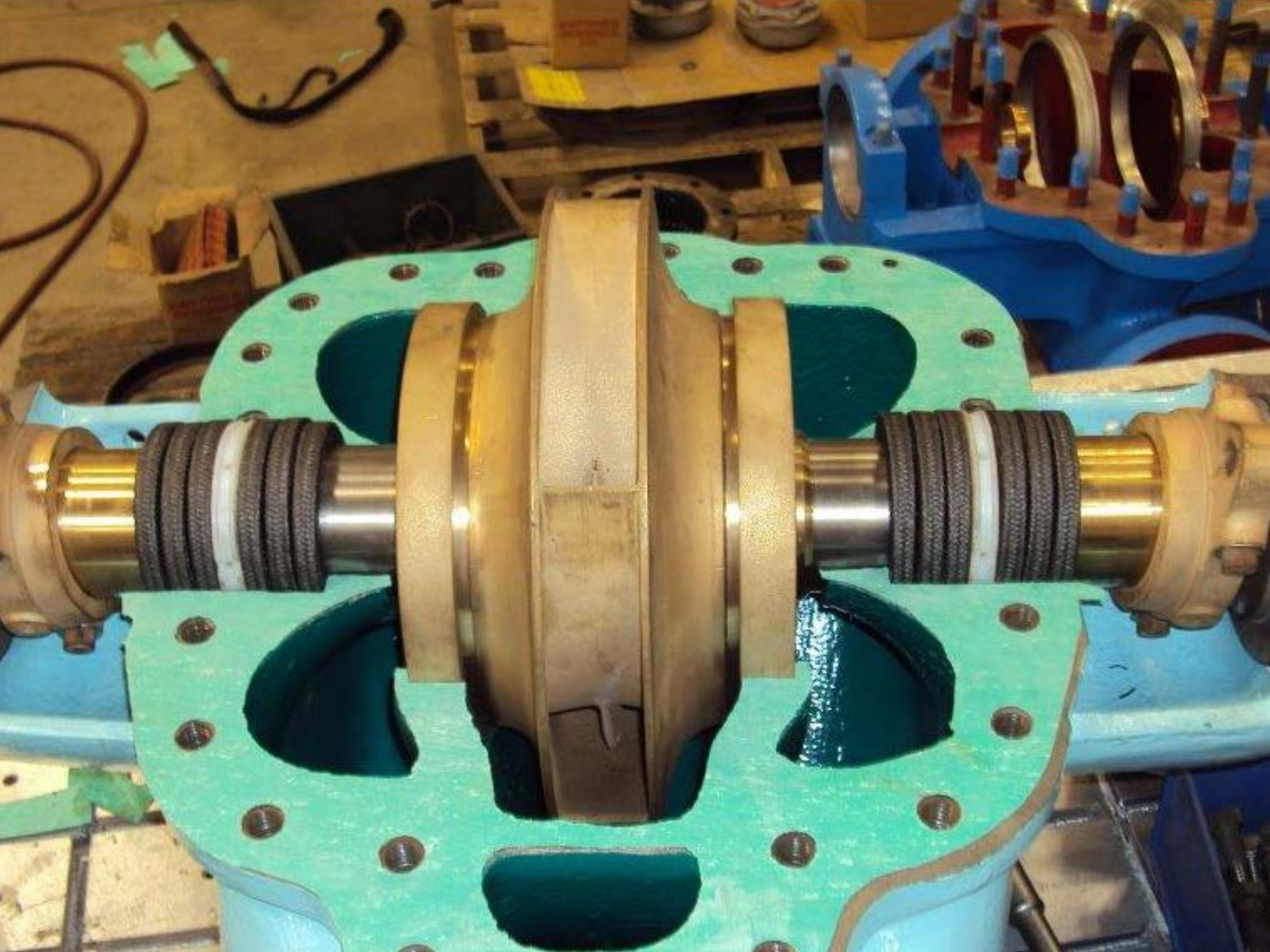
Horizontal Split Case Pumps

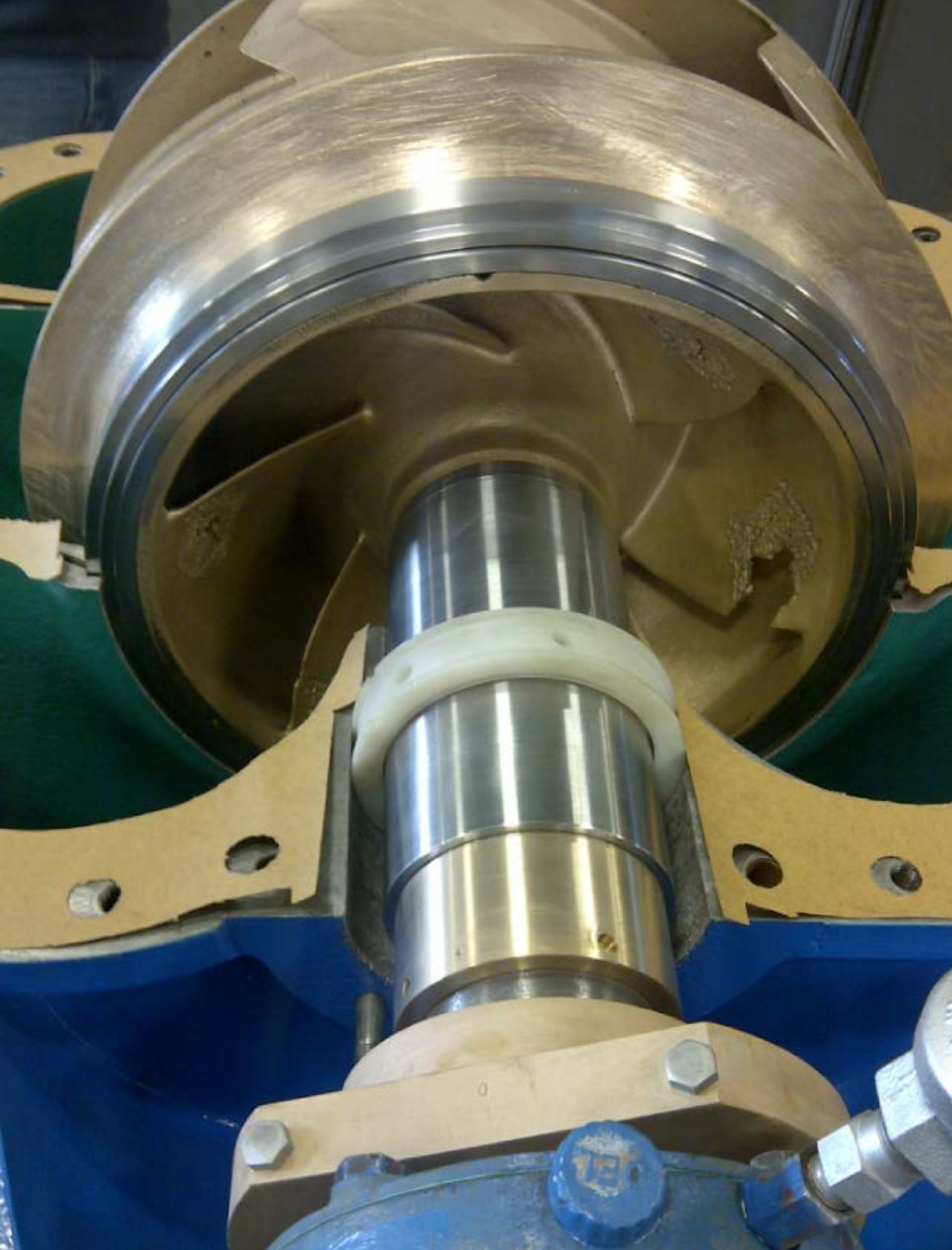






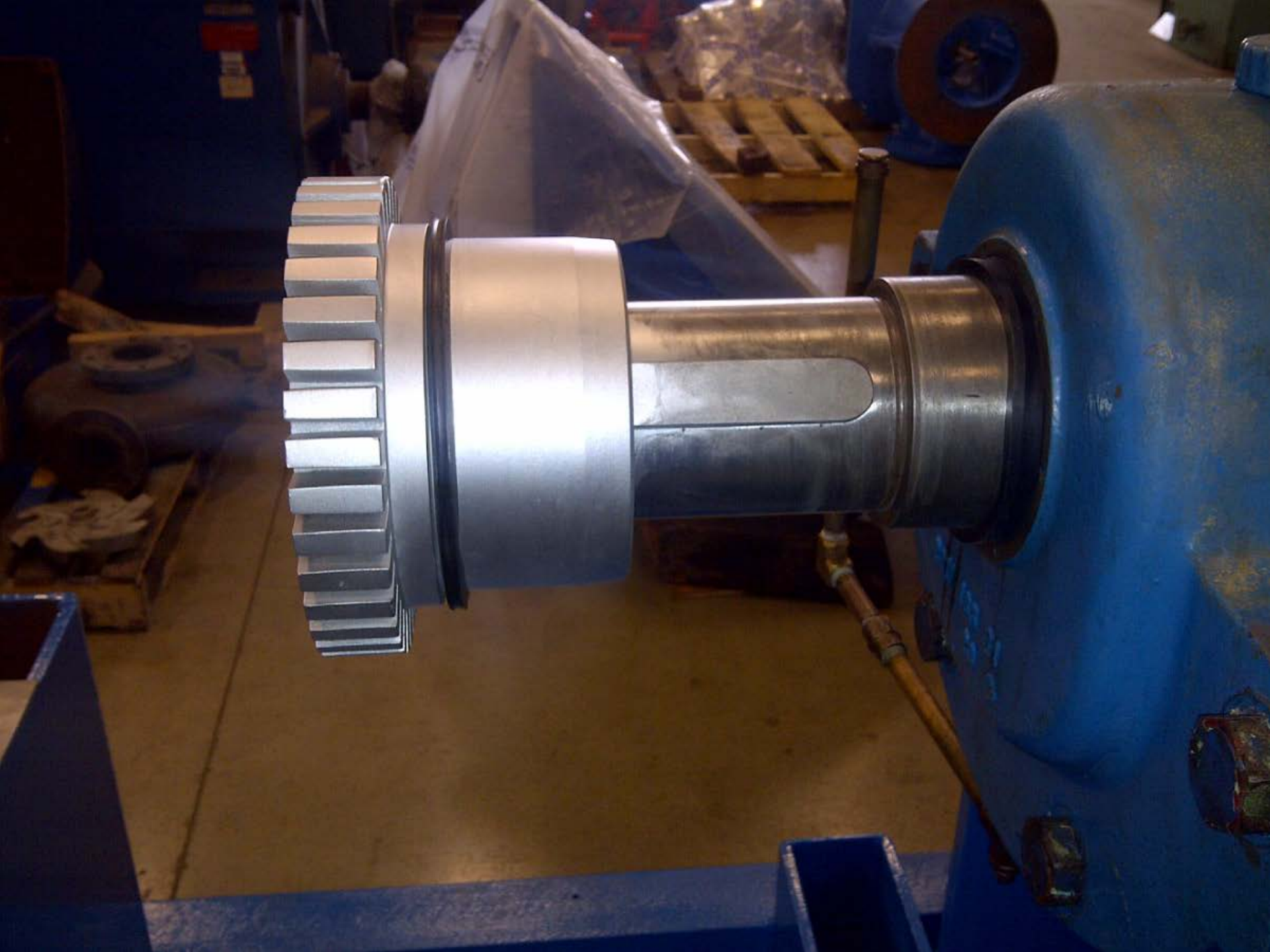
























10 Ways to **Murder** Your Pump



1. Overwork It

- Pumps are designed for specific operating conditions.
- Placing pump components under stresses that they were not designed for could cause premature failure.











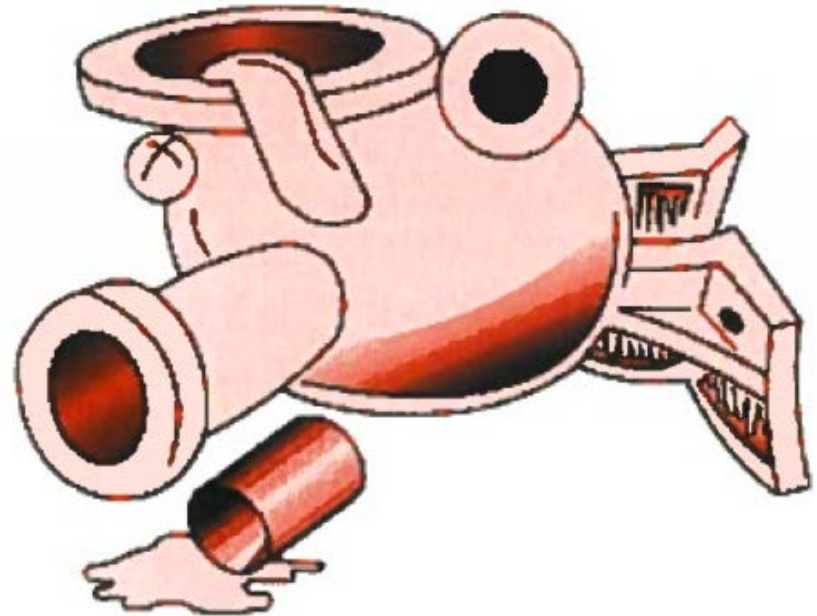






2. Poison It

- Pumps are designed to handle specific fluid properties.
- Changes in fluid properties (density, viscosity, temperature, chemistry) may cause damage to the pump and affect pump performance.



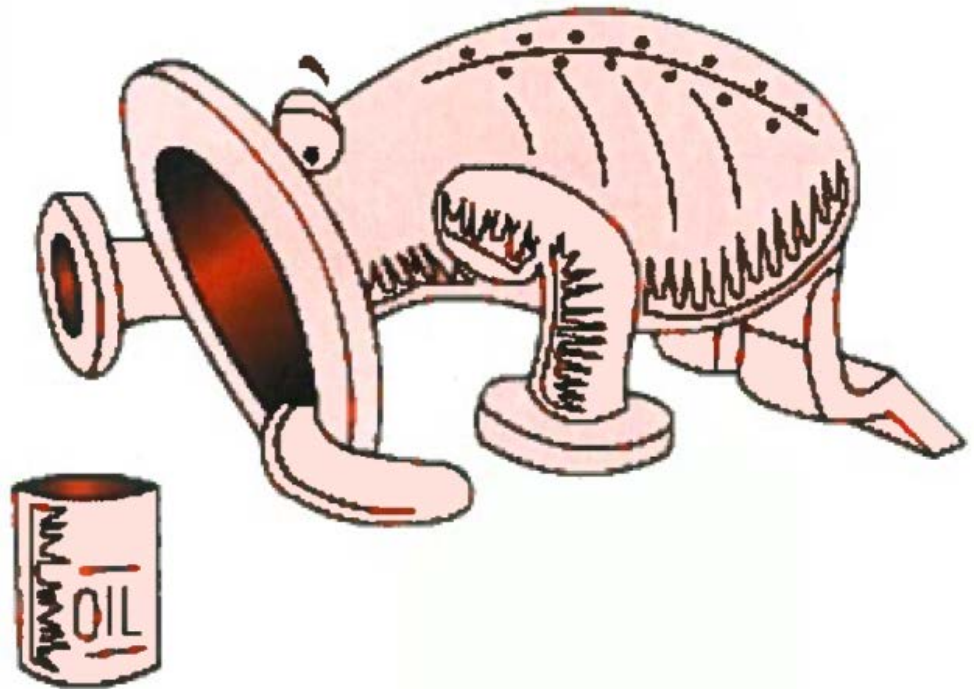






3. Starve It

Bearings need periodic level checks or replenishment to operate properly.







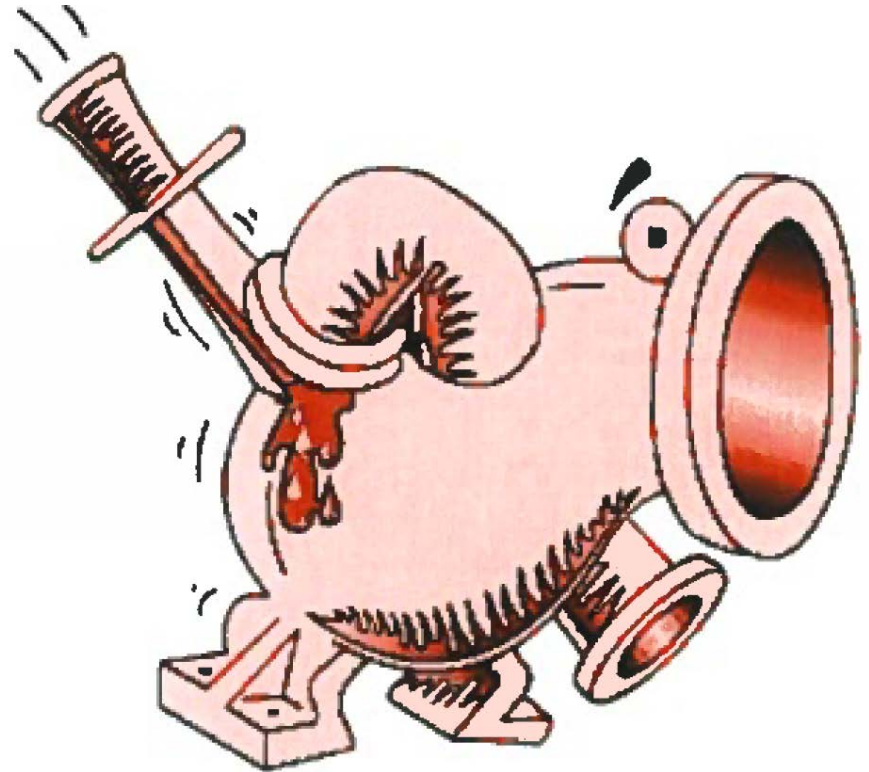


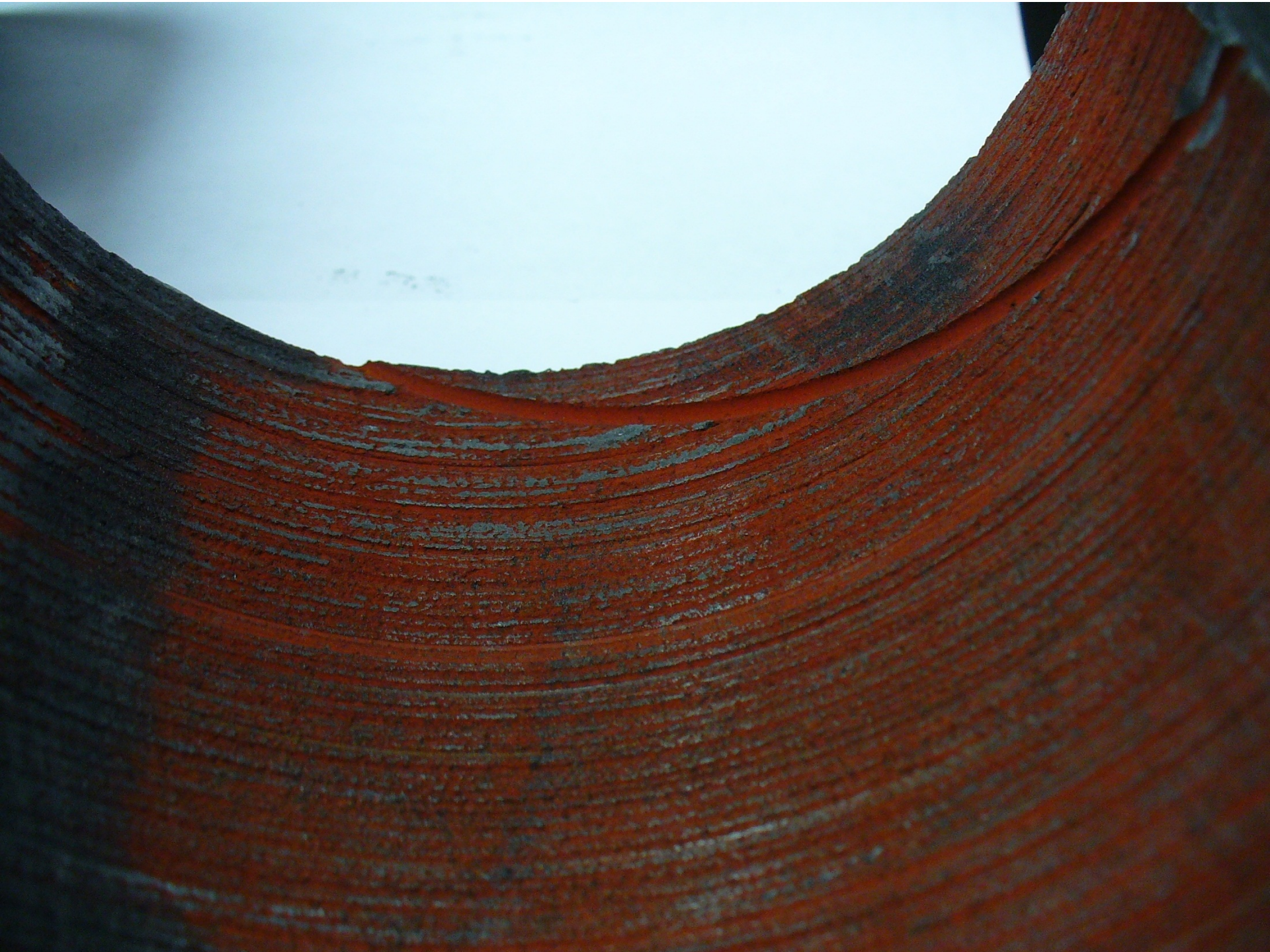




4. Stab It

Heavy amounts of grit, sand and scale can cause premature wear to internal pump components.



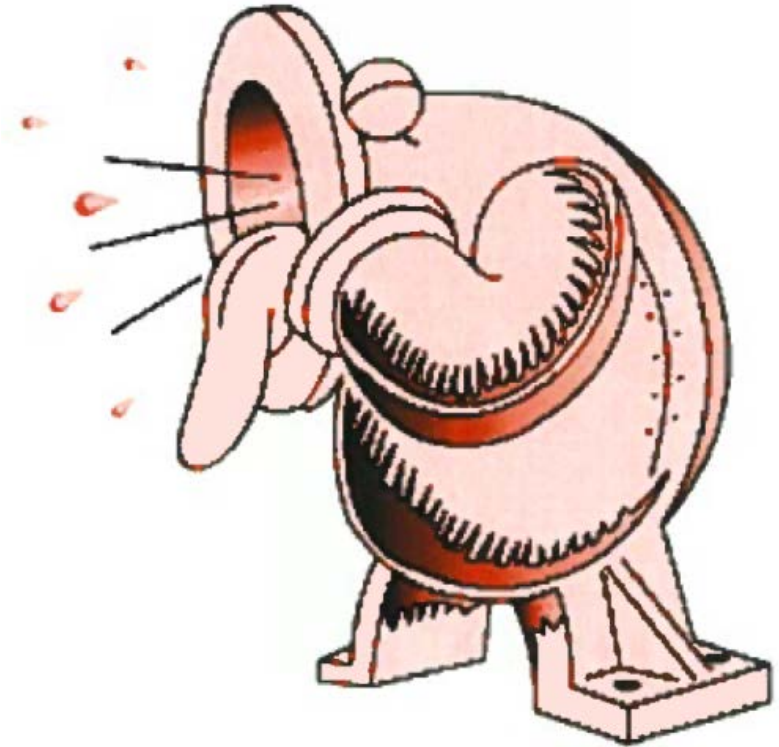






5. Choke It

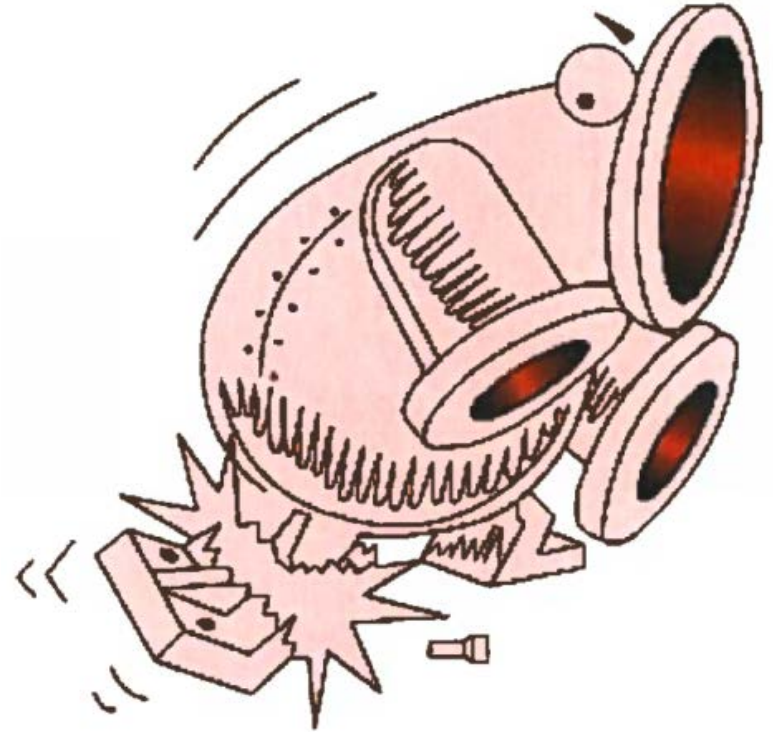
- Pumps require a constant supply of water to maintain stable operation.
- If minimum acceptable suction conditions are not met, the pump could be damaged

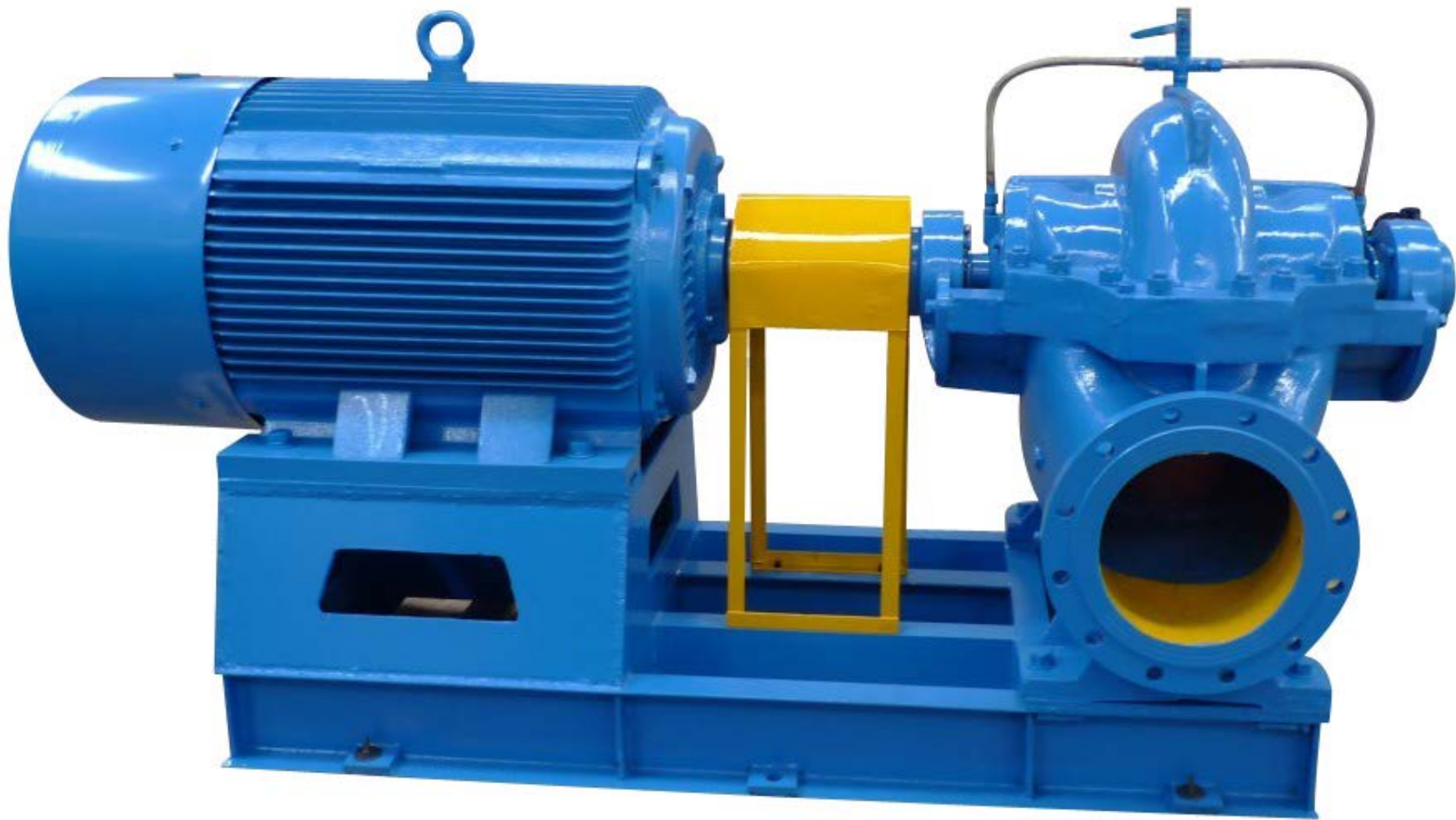




6. Breaks Its Limbs

Any additional loads added to the pump can cause adverse effects on pump performance and lead to physical damage.





7. Fry It

- Operating outside the pump's acceptable operating range, near shut off head, could cause the pump to overheat damaging internal pump components.
- Pumps can overheat due to excessive friction caused by misaligned mechanical seals or packing fit too tight.
- Do not run pumps dry!











05/30/2012

8. Shake It to Pieces

Improper alignment or base support can cause excessive pump vibration and physical damage.





9. Drown It

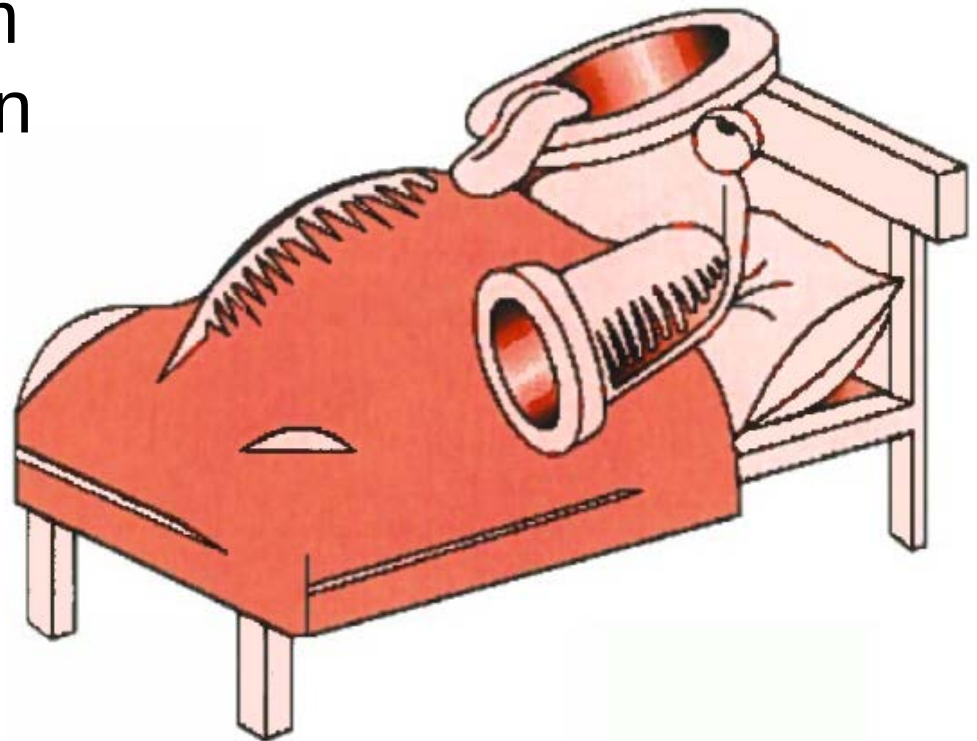
Small amounts of water in the bearing housing can cause severe reduction in bearing life.





10. Neglect It

Follow regular maintenance schedules to maximum operation time between failures.



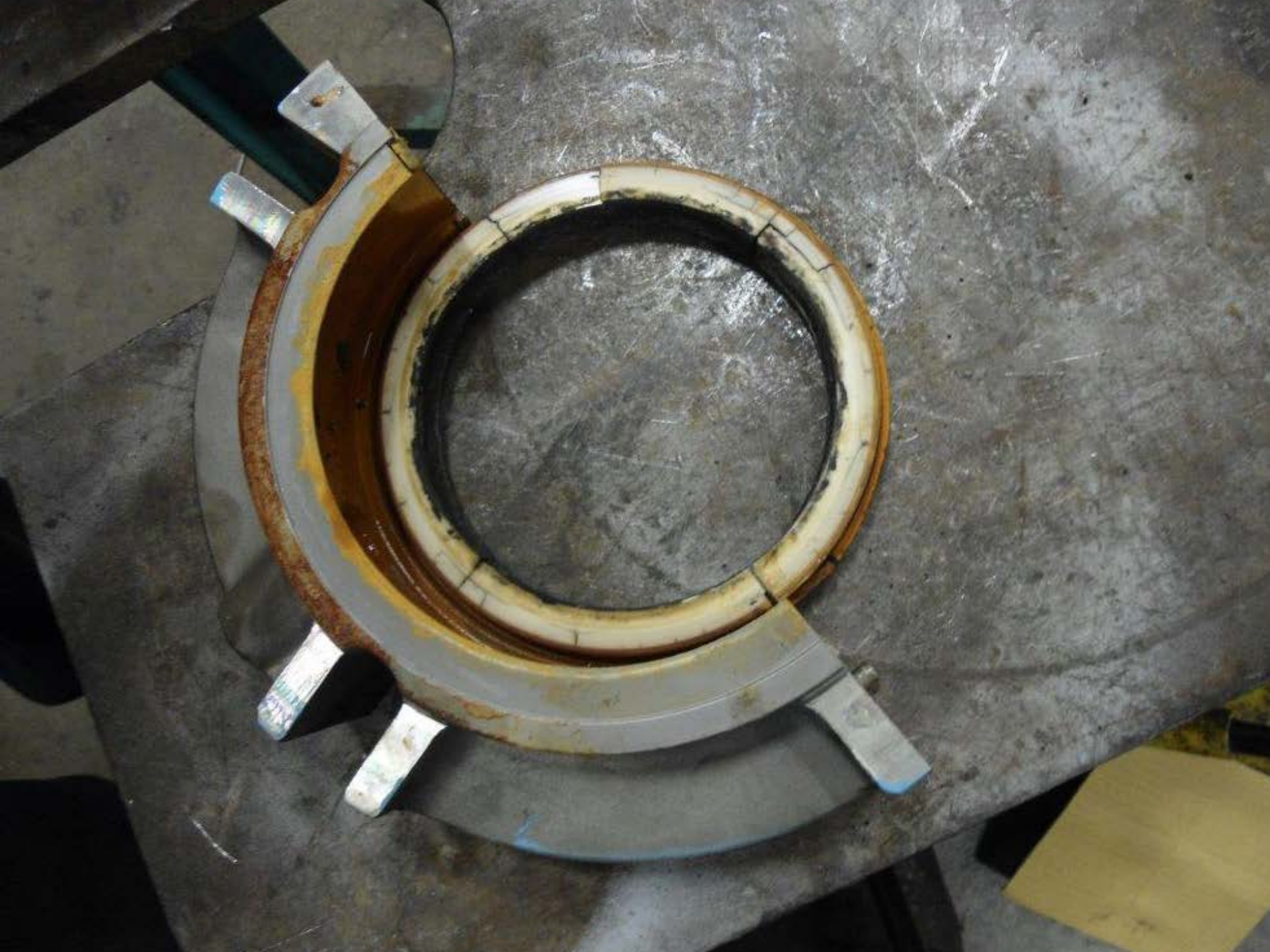














10 Ways to **Murder** Your Pump





Acknowledgements



ADVANCED PUMP REPAIR SERVICE INC.





Questions?



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TOTAL HEAD — METRES

