

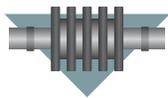
PROCESS SOLUTIONS FOR INCREASED EFFICIENCY, RELIABILITY AND SAFETY OF PUMPS AND PIPING SYSTEMS



The **metering of fluids** is critical in maintaining control of quality and material usage. A SENTRY PULSATION DAMPENER installed at the discharge of a reciprocating pump eliminates the pulsating flow, allowing the meter to respond to a steady flow; insuring its accuracy, protection and longevity.



Quick closing valves create dangerous pressure surges during operation. When fluid velocity is stopped, it is transformed into pressure energy, causing a pressure spike up to six times greater than operating pressure – valves are destroyed, piping is ruptured, and sensitive instrumentation is damaged. A SENTRY SURGE SUPPRESSOR, placed upstream as close to the valve as possible, will absorb dangerous pressure spikes.



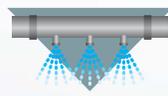
Filter screens are susceptible to breakdown due to fatigue and 'stretching' from pulsations. Pulsating fluids will loosen and eventually tear apart filter media. In addition, pulsating pressure spikes will enlarge the flow holes in the media and allow larger-than-acceptable particles to pass. A SENTRY PULSATION DAMPENER placed at the pump discharge will create a steady pressure and constant flow against the filter media to ensure longer media life and particle size integrity.



At **pump start up**, the fluid in a pipeline must be accelerated from zero to operating velocity. When the initial pump surge comes into contact with the static line fluid, a pressure spike is created. The force of this 'water hammer' will rupture pipes, break pipe fittings and destroy instrumentation. A SENTRY SURGE SUPPRESSOR installed at the pump discharge will absorb the initial fluid surge, then discharge the accumulated fluid as the pipeline achieves a steady flow.



Suction stabilization is critical to a pump's efficiency and in preventing cavitation. Cavitation will result in premature failure of pump components including seals, packing, plungers and diaphragms. A SENTRY SUCTION STABILIZER installed at the pump inlet will control the pressure fluctuations and acceleration loss which lead to cavitation. With a suction stabilizer, the pump will always have a full volume stroke.



Coating, spraying and curtain coating applications benefit with the addition of a SENTRY PULSATION DAMPENER placed directly at the discharge of a reciprocating pump. A pulsating pump creates an uneven fluid flow to the coating or spraying process. The uneven application of material can result in rejected product and overuse of coating materials, both resulting in lost profits.



Back surge occurs when a pump is required to pump vertically or over a rise. At pump shut down, the fluid reverses direction and gains velocity as it travels back toward the pump. As it hits the pump or the pump's check valve, the fluid is abruptly stopped and a dangerous pressure spike is created. A SENTRY SURGE SUPPRESSOR placed at the pump's discharge or check valve absorbs the pressure shock, saving the system from damage.



Thermal expansion of fluids in a closed system can result in dangerously high pressures, which lead to ruptured pipes and fittings, destroyed in-line instrumentation, burst pressure relief valves and contaminated surroundings. A SENTRY THERMAL EXPANSION CHAMBER placed in line will accumulate the expanded fluid, reducing the increase in pressure.