



PREVENT ENSURE PROTECT



Improve Pump and
Instrumentation Performance
Throughout Your Entire
Process System
while Significantly Extending
System Component Life.

SENTRY Pulsation Dampeners, Surge Suppressors and Inlet Stabilizers – *Protect* pumps and system components from destructive pulsation, surges and hydraulic shock. *Prevent* premature pump failure, pipe breakage, product agitation and system contamination. *Ensure* a steady, continuous fluid flow and increased service life of all system components.

SPILLSTOP Spill Prevention and Leak Containment – *Prevent* hazardous and costly spills when pump diaphragms fail. *Protect* against dangerous materials expelled from pump exhaust. *Ensure* automatic failed pump shutdown and minimal system downtime.

SENTINEL Diaphragm Seals and Gauge Guards – *Ensure* accuracy and reliability of all pressure instrumentation. *Prevent* damage to process system instruments caused by corrosive process fluids. *Protect* gauges from erratic pressure surges, freezing and slurries.

SENTINEL Back Pressure and Pressure Relief Valves – *Protect* pumping systems from over-pressure damage. *Prevent* siphoning and varying dosage rates. *Ensure* a regulated flow and maximum pressure within system limits.

Remove up to 99% of System Shock

Positive displacement pumps create destructive pulsation and hydraulic shock due to the reciprocating nature of their stroking action, potentially damaging piping and system components. SENTRY Pulsation Dampeners and Surge Suppressors remove virtually all system shock, enhancing the performance and reliability of fluid flow in municipal, industrial, sanitary and chemical transfer applications.

- Protect pumps, piping, valves, fittings, meters and in-line instrumentation from damaging pulsations, cavitation, thermal expansion, hydraulic shock and water hammer
- Prevent destructive pressure surges caused by pump startup and shutdown
- Prevent hydraulic shock resulting from emergency valve closure and other equipment shutdown
- Prevent agitation, foaming, splashing and degradation of product
- Ensure accuracy, longevity and repeatability of flow meters and pressure gauges
- Ensure a smooth steady flow in metering and chemical injection processes
- Ensure uniform and continuous application in spraying and coating processes

- Ensure proper measurement, flow and filling applications of food and pharmaceutical products
- Ensure consistent flow when dosing, blending or proportioning process additives
- Ensure a smooth transfer of viscous or abrasive fluids

Protect Inlet System Components

Positive displacement pumps contain an inlet valve that alternately opens and closes, creating an acceleration and deceleration of fluid into the pump. SENTRY Inlet Stabilizers minimize these pressure fluctuations and acceleration head losses by preventing fluid column separation at the pump's inlet. The patented "J" Model air control allows for pressure or vacuum settings and is adjustable for suction lift or positive inlet pump conditions. (US Patent 6,089,837)

- Protect pumps, valves, diaphragms and pistons from excess stress and strain
- Protect inlet system components from vibration and fatigue
- Prevent premature system component failure and cavitation
- Prevent gauge damage due to vibration
- Ensure steady inlet flow conditions to extend pump diaphragm life
- Ensure complete chamber fill to maximize component service life
- Ensure accuracy of inlet side gauges

TECHNICAL SPECIFICATIONS

SENTRY Pulsation Dampeners, Surge Suppressors and Inlet Stabilizers come in a full range of chemically resistant materials for even the most corrosive applications. The simple, reliable design allows for quick installation and easy in-line maintenance. All SENTRY housings are made in the USA and each unit is tested at design pressure or higher to assure proper function and leak-free operation.

- Positive displacement pump discharge sizes from 1/8" (3.18 mm) to 6" (152.4 mm)
- Temperature ranges from -60°F to +400°F (-51°C to +204°C). Pressure ranges up to 4000 psi (276 bar)
- Custom models available up to 100 gallons (378.5L) and 25,000 psi (1,724 bar)
- Sanitary and flow-through models available for biotech, pharmaceutical and food industries



	Max Pressure	Capacity	Temperature	Inlet Ports	Materials
PLASTIC	100 - 250 psi (6.9 - 17.2 bar)	4 cu in - 5 gal (.066 - 19L)	-20°F - +250°F (-29°C - +121°C)	Threaded: FNPT, BSP Flanged: ANSI, DIN, Socket	Polypropylene, Conductive Polypropylene PVC and CPVC, PVDF Conductive Acetal, Machined PTFE
METAL	300 psi (20.7 bar)	4 cu in - 100 gal (.066 - 379L)	-60°F - +400°F (-51°C - +204°C)	Threaded: FNPT, BSP Flanged: ANSI, DIN, Socket	Aluminum, Carbon Steel, 316L Stainless Steel Alloy 20, Hastelloy C Epoxy, PVDF and PTFE Coated Steel
HIGH PRESSURE	13,500 psi (930.8 bar)	8 - 24 cu in (.13 - .39L)	-60°F - +225°F (-51°C - +107°C)	Threaded: FNPT Flanged: ANSI (Custom ports available on request)	316L Stainless Steel, Carbon Steel Alloy 20, Hastelloy C
SANITARY	1,000 psi (68.9 bar)	4 cu in - 10 gal (.066 - 38L)	-20°F - +350°F (-29°C - +177°C)	Tri-Clamp Sanitary Fitting	30 RA Polished 316L Stainless Steel Bead Blasted 316L Stainless Steel

Bladder Options Air Controls

Aflas, Buna, FDA Buna, EPDM, Hypalon, Neoprene, PTFE, Santoprene, FDA Silicone, Viton Chargeable, Stainless Steel Chargeable (V-Control), Inlet Stabilizer ("J" Model), Automatic, Adjustable

Caution: Stated max pressure is for ambient temperatures; max pressure not available on all models. Temperature ranges based on available materials. Consult BLACOH for specific ratings.

SENTINEL

DIAPHRAGM SEALS & VALVES

Protect and Isolate System Instrumentation

Without proper protection, process fluids regularly contaminate and damage in-line instrumentation. The strength and durability of SENTINEL Diaphragm Seals protect and isolate all forms of system instrumentation from the hazards of corrosive process fluids.

- Protect gauges and other pressure instrumentation from process fluid contamination and corrosion
- Prevent erratic pressure surges and clogging due to solids in process fluids
- Protect gauges from freezing and slurries
- Ensure gauge and switch accuracy
- Ensure accurate and consistent readings with corrosive or solids-laden fluids

SENTINEL Diaphragm Seals are easily installed, come in a variety of chemically resistant materials, and work in both pressure and vacuum conditions.

- Reduce costs by replacing expensive gauges with low-cost utility gauges
- Diaphragms and seal bodies unconditionally guaranteed
- Accuracy of +2% or better full deflection
- Pressure ranges to 1000 psi (68.95 bar)
- 1/4" to 3/4" (6.35 up to 19.05 mm) inlet ports

SPILLSTOP

LEAK CONTAINMENT SYSTEM

Prevent Costly and Hazardous Spills When Pump Diaphragms Fail

Diaphragm failure in air operated diaphragm pumps allows process fluid to escape through the pump's air exhaust port. Unmonitored, the spill can result in significant expense to your company due to lost product, hazardous material cleanup, EPA reporting and system downtime. SPILLSTOP's patented design prevents hazardous and costly spills by capturing the expelled process fluid and automatically shutting down the pump. (US Patent 5,501,577)

BLACOH was founded in 1976 with a single mission - design a simple and effective solution to the common problems associated with the start-stop, pulsating fluid flow inherent in process systems using positive displacement pumps. Since those early days our customers have continued to direct our progress and growth, driving product innovations to solve a variety of common process system problems. Today, led by a team with over 60 years of combined experience, BLACOH stands alone as the leader and foremost expert in the manufacture of fluid control products for all facets of municipal and industrial process industries, and virtually every application from the harshest chemicals to the most delicate cosmetics.



BLACOH provides a limited warranty on its products, the terms of which are available on BLACOH's website (www.blacoh.com) or directly from BLACOH. Because the terms of the limited warranty are a part of the purchase agreement, the customer is asked to read the limited warranty prior to purchasing any BLACOH product. SENTRY, SENTINEL and SPILLSTOP are trademarks of BLACOH Fluid Controls, Inc.

Protect Against Pressure Damage, Prevent Siphoning and Ensure Stable Dosage Rates

SENTINEL diaphragm pressure relief valves are designed to continuously regulate fluid flow to protect pumping systems from over-pressure damage caused by defective equipment or a blockage in the pump system line.

SENTINEL diaphragm back pressure valves enhance system performance by applying a continuous back pressure to the system pump. Eliminating fluctuations in downstream pressure prevents siphoning and eliminates varying dosage rates, and the continuous back pressure ensures proper check valve operation in metering pumps when system pressure is too low.

- Robust machined construction
- Compact size for OEM applications
- Adjustable 10 to 250 psi (0.69 to 17.24 bar)
- Optional 350 psi (24.13 bar) rated valve
- 3 Port, 2 Port and 90° configuration
- Vulcanized PTFE/EPDM diaphragms



- Fully pneumatic operation eliminates the need for dangerous electronics or unreliable batteries
- Warning alarm and automatic backup pump switchover
- Compatible with all AODD pumps with discharge sizes from 1/4" (6.35 mm) to 4" (101.6 mm)

When pumps behave badly...

DON'T PUMP WITHOUT US!

The patented **SPILLSTOP Leak Containment System** attaches directly to the exhaust of an air operated diaphragm pump. When pump diaphragms fail, SPILLSTOP captures dangerous and/or expensive process fluid in an internal receptacle while raising a float switch to automatically shut down the pump. SPILLSTOP can also be configured to sound a warning alarm and/or initiate a backup pump switchover.



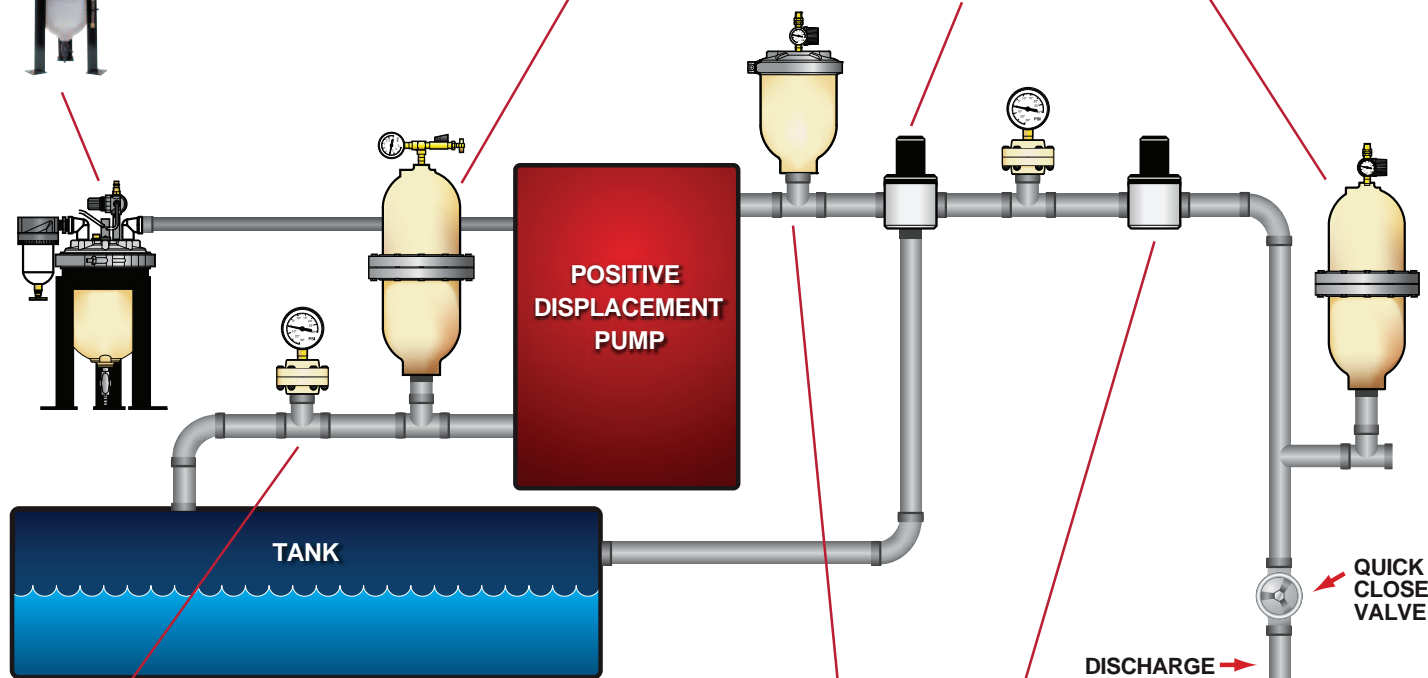
SENTRY Inlet Stabilizers accumulate liquid at the pump's inlet to ensure complete chamber fill and extend the service life of all inlet system components. The patented "J" Model air control allows you to adjust for pressure or vacuum settings depending on whether pump operation is under suction lift or positive inlet conditions.



SENTINEL Pressure Relief Valves protect pumping systems from over-pressure damage caused by defective equipment or a blockage in the system line. When the pressure in the system exceeds the preset pressure of the valve, the diaphragm is held against the valve seat by an internal spring. When the preset pressure is exceeded, the diaphragm is forced up and the system fluid flows out the relief port and back to the system fluid tank.



SENTRY Surge Suppressors eliminate hydraulic shock and water hammer caused by quick-closing valves, back surge and pump startup/shutdown. Without suppression, shock waves will continue to oscillate back and forth until dissipated by friction or system component failure occurs.



SENTINEL Diaphragm Seals employ a chemically resistant diaphragm to effectively isolate process fluids from gauges and other process instrumentation. This durable diaphragm allows SENTINEL to accurately transfer process pressure without direct contact with hazardous or corrosive fluids.



SENTRY Pulsation Dampeners use a compressed gas separated from the process fluid by a bladder to act as a shock absorber. During the pump's discharge stroke, fluid pressure displaces the bladder compressing the trapped gas. Compressed gas expands during the pump's inlet stroke, forcing the bladder to push accumulated fluid back into the discharge line. This fills the void created by the cycle shift and dampens pulsations and vibration up to 99%.



SENTINEL Back Pressure Valves enhance system performance by applying a continuous back pressure to the pump. The diaphragm is held against the valve seat by an internal ring. When the valve's preset pressure is exceeded, the diaphragm is forced up and system fluid flows through the valve to the injection point.

