

S/N: _____ MODEL #: _____ DATE OF PURCHASE _____

MATERIALS OF CONSTRUCTION: BODY _____ BLADDER _____



Protection Degree 112GDTXC Complies with EN-13463-1 and EN-13463-5. (Non-electrical equipment for potentially explosive atmospheres in dust and gases to group II category 2GD) Temperature limit is determined by the liquid inside the dampener and materials of construction. Dampener has no means of independent self temperature elevation. Constructional safety by means of grounding lug supplied and marked.

CAUTION: Dampener must be grounded (Earthed) when used in potentially explosive atmospheres

INSTALLATION NOTES**READ BEFORE INSTALLATION**

- **ADJUSTABLE SENTRY MODELS ARE NOT RECOMMENDED FOR WATER HAMMER APPLICATIONS. CONSULT FACTORY FOR OPTIONS.**
- Blacoh recommends installing a pressure relief valve in all pump systems to ensure compliance with pressure limits on system equipment.
- Mount SENTRY as close to pump discharge, inlet and/or quick closing valve as possible.
- **If a system pressure test is to be performed, SENTRY must be charged with 80% of the system test pressure, prior to test.** This will avoid possible bladder damage.
- Temperature and pressure affect the strength and chemical resistance of plastic and rubber. Please consult factory for additional information.
- Remove all pressure from SENTRY unit AND pumping system before attempting maintenance.
- Do not exceed 150 PSI with Adjustable models. **Check pressure rating shown on serial tag.**
- Always wear safety glasses when installing, charging or repairing SENTRY units.
- Do not operate a SENTRY that is leaking, damaged, corroded or unable to hold internal fluid, air or gas pressure.
- Pre-charge SENTRY with compressed air or nitrogen only. **DO NOT USE OXYGEN**
- **DANGER OF STATIC SPARK!**
GROUNDING PRECAUTIONS MUST BE CONSIDERED WHEN USED IN FLAMMABLE OR EXPLOSIVE ENVIRONMENTS

INSTALLATION FOR PUMP DISCHARGE PULSATION READ BEFORE INSTALLATION**Step 1 – Installation Position**

Install the dampener in-line, as close to the pump discharge as possible to absorb the pulse at its source. Install ahead of any downstream equipment such as risers, valves, elbows, meters, or filters. Dampener installation should be no more than ten pipe diameters from pump discharge. If using a flexible connector from pump to system piping, dampener should be installed at the pump discharge manifold. The flexible connector should be attached to the dampener's tee and system piping (see Figure 1). Since pressure is equal in all directions, SENTRY can be installed in a vertical, horizontal, or upside-down position. Blacoh recommends a vertical installation for better draining of the unit. Limitations for horizontal and upside-down mounting include high specific gravity, high viscosity, settling of solid material, or possible air entrapment, which could result in shortened bladder life and/or reduced dampening performance.

Step 2 – Air Line Connection

Using a ¼" flexible air hose, run an air-line to the top of SENTRY and connect it to the brass, one-way check valve on top of the regulator. Do not remove one-way check valve. The check valve prevents fluid back flow through the air hose in case of bladder failure. Air supply to the SENTRY must be greater than the pump discharge and/or system pressure. If the SENTRY is being used in conjunction with a pneumatically operated pump, a tee can be used to run the air-line to SENTRY from the existing pump air supply line (See Figure 1). The tee should be placed before any in-line pump instrumentation, such as a filter, regulator, lubricator or other pump control valve.

Step 3 – Charging and Start Up – see *PRE-CHARGE NOTES* on next page.

Prior to starting the pump, adjust regulator to fill SENTRY with compressed air to approximately 2 to 7 psi LOWER than expected system pressure. The air charge must always be lower than pump discharge pressure. Generally, pulsation is most effectively minimized when the air charge is 2 to 7 PSI lower than system pressure. Start the pump to generate system pressure. NOTE: Once system pressure is in contact with the bladder, the gas charge will be compressed to the system pressure and the dampener gauge will read the system pressure, not the initial charge pressure. Once working pressure is achieved, adjustment may be necessary. Gradually increase or decrease the gas charge in the dampener by bleeding or filling through the self-relieving pressure regulator. Allow the system to respond to each adjustment (this may take a minute or two) before making further adjustments.

Step 1 – Installation Position

Install SENTRY as close to the pump inlet as possible. Install after any upstream equipment such as risers, valves, elbows, meters, or filters. If using a flexible connector from system piping to pump, SENTRY should be installed to the pump inlet manifold. The flexible connector should be attached to the SENTRY tee and system piping (see Figure 1).

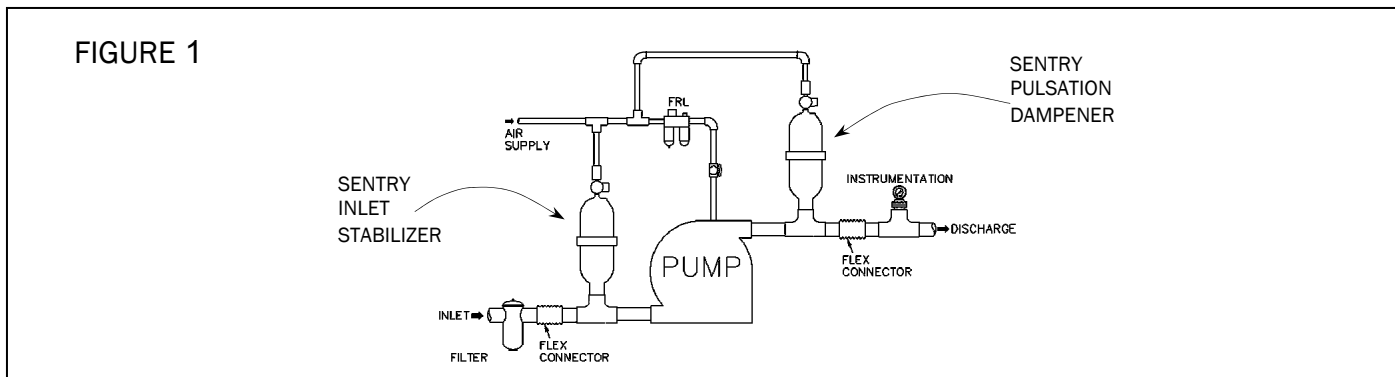
Step 2 – Air Line Connection

Using a ¼" flexible air hose, run an airline to the top of SENTRY and connect it to the brass one-way check valve on top of the regulator. Do not remove one-way check valve. The check valve prevents fluid back flow through the air hose in case of bladder failure. The air supply to SENTRY must be greater than the pump discharge and/or system pressure. If the SENTRY is being used in conjunction with a pneumatically operated pump, a tee can be used to run the air-line to SENTRY from the existing pump air supply line (See Figure 1). The tee should be placed before any in-line pump instrumentation, such as a filter, regulator, lubricator or other pump control valve.

Step 3 – Charging and Start Up – see PRE-CHARGE NOTES.

A. Suctions Lift/Accumulator: No pre-charge is required in a lift/accumulator installation. Start the pump to generate working pressure. As system pressure and vacuum is created, the acceleration head created with each suction stroke will compress the air trapped in the bladder. For better inlet stabilization, a SENTRY "J" Model is recommended.

B. Positive Inlet Pressure: Pre-charge SENTRY with 50% of the static pressure realized at the pump inlet. Start the pump to generate working pressure. Minor pressure adjustments may be required. Allow the system to respond to each adjustment (this may take a minute or two) before making further adjustments.

**PRE-CHARGE NOTES****READ BEFORE INSTALLATION**

Gas molecules will diffuse through elastomer membranes, the speed of which depends on elastomer material, temperature and pressure. As a rule of thumb, the air supply should be checked every month. Verification of proper vessel pressure must occur when no system pressure is present or inaccurate readings will be recorded. If temperature is above ambient, checks should be performed more frequently. **Adjustable SENTRY products should NEVER be used in applications where pressures greater than 150 PSI are present.** A proper air charge is the key to dampener effectiveness and bladder life.

MAINTENANCE

SENTRY Pulsation Dampeners require very little maintenance. There is only ONE wear part – the elastomeric bladder or the PTFE bellow. There is no need for lubrication. Elastomeric bladder replacement should be put on a preventive maintenance program. Dampeners used in conjunction with diaphragm pumps should have the bladders replaced, at least every second time the diaphragms in the pump are replaced. As with any pumping system, wear is dependent upon many factors, including material, temperature, chemicals, fluid abrasiveness and system design. This suggested maintenance program may need to be adjusted according to specific applications. Periodic inspection of the dampener and fasteners should be conducted to visually check for signs of over-pressurization, fatigue, stress, or corrosion. Body housings and fasteners must be replaced at first indication of deterioration.

IMPORTANT!

AFTER MAINTENANCE OR RE-ASSEMBLY, TORQUE FASTENERS ACCORDING TO SPECIFICATION ON THE UNIT TAG.

Standard Product Warranty: Blacoh Fluid Control warrants its products to be free of defective material and workmanship under normal use and service for two years from date of shipment. The remedy for any product defect covered under this warranty shall be limited to the replacement or repair of the defective part or parts and Blacoh will not be responsible for damages or injury caused to other products, machinery, buildings, property or person. This warranty shall be null and void if the product has been altered, misapplied, misused, or neglected of maintenance. Damage or loss resulting from over-pressurization of a product, whether from gas or fluid does not constitute a defect covered under this warranty nor will Blacoh be responsible in any way for any such damage or loss. Because Blacoh cannot anticipate or control the many different conditions under which its products may be used, Blacoh does not guarantee the applicability or suitability of its products for any particular use or purpose. Each user of Blacoh products should conduct its own tests to determine the suitability of each product for its intended uses or purposes. Blacoh products are sold with this limited warranty and each buyer assumes all responsibility for loss or damage, including consequential damage, arising from the handling and use of Blacoh products whether used in accordance with Blacoh's directions or otherwise. Statements concerning the possible use of Blacoh products are not intended as recommendations for any specific use of such products. This Standard Product Warranty shall be governed by and construed in accordance with the laws of the State of California.



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