

Surge Analysis  
Transient Monitoring  
Surge Vessels  
Air Release/Vacuum Valves  
Check & Control Valves  
Control Panels  
Peer Review Services

### PERSONALIZED SURGE SOLUTIONS

To meet the full scope of our customers' needs and to broaden our diverse family of products and professional services, Blacoh expands its depth of industry expertise with the launch of Blacoh Surge Control. Blacoh Surge Control provides customized engineering solutions for large pressure vessels in surge protection, pressure regulation, storage, and pump control. These types of large surge vessels are typically used in chemical processes, water, wastewater, fire protection, mining, oil and gas pipelines, loading terminals, and refining applications.



### SPECIALIZED SOLUTIONS

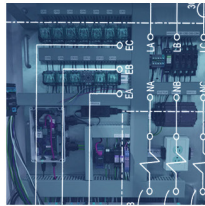
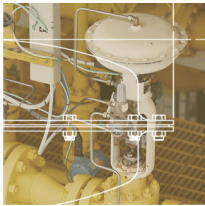
- Transient Analysis
- 2 and 3 Stage Air/Vacuum Valves
- UL CSA Listed Electrical and Instrumentation Control Panels
- VFD and PLC Driven Pump Control Panels with System Integration
- Sizing pump control valves and check valves via fluid transient modeling
- Emergency shut-off valves to include computer sizing and testing



### PROOF OF DESIGN & MONITORING

What makes Blacoh's services unique to the industry is our system modeling and proof of design to ensure that the vessel is specific to your application and solves your configuration's unique needs. We also offer our patented SurgeWave Transient Monitoring System, which can detect and record transient pressures up to 100 times per second, provide graphical analysis of all recorded data and send alerts as soon as the desired boundaries are exceeded.

**SURGEWAVE™**  
— TRANSIENT MONITORING SYSTEM —

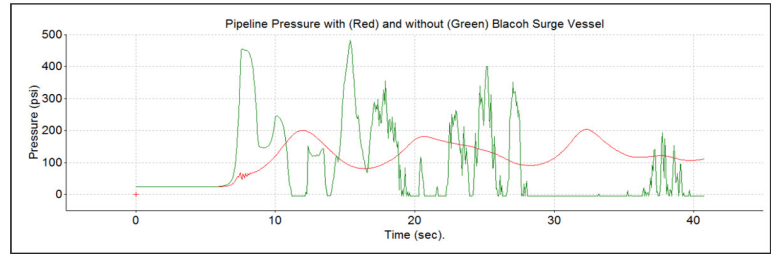


## BLADDER & COMPRESSOR TYPE VESSELS

For bladder types, rugged and proven Butyl, Nitrile, Vinyl Polyurethane bladders along with epoxy coated carbon steel tanks provide the long life and dependable performance needed in diverse applications. Our Blacoh Surge product line of bladder and compressor type vessels extends to sizes 40,000+ gallons.

## AIR RELEASE/VACUUM VALVES

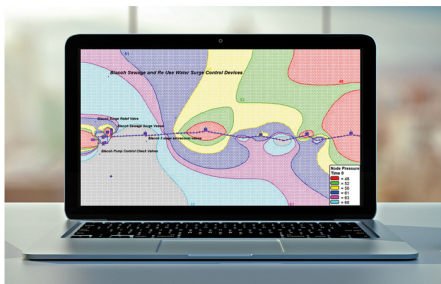
Designed for operation in potable water, wastewater and sewage conditions, air release/vacuum valves perform a minimum of three primary functions. They add air to the piping system when draining the pipeline, air can be exhausted when filling the pipeline, and trapped air pockets at piping high points can be released as well. A variety of sizes, materials and configurations are available for each unique application.



## THE BLACOH ADVANTAGE

Blacoh's Transient Pressure Monitoring System is strategically designed to monitor pipeline pressure in water pipelines, force main sewer pipelines and petroleum pipelines to provide operators with detailed information about transient pressures or pressure surges.

This patented system has the ability to turn on a high-speed pressure recorder when an event such as a pressure surge, pressure spike or water hammer is detected. This engineering breakthrough allows designers, engineers, manufacturers, and operators the ability to assess the overall performance of a pipeline, pumping plant or petroleum refinery using non-destructive, real-time sensors and hand-held monitoring equipment.

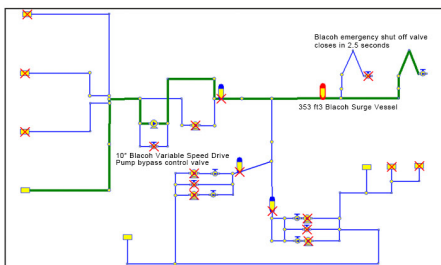


## PIPE MODELING SOFTWARE

Our cutting edge surge software measures and models your specific system to provide accurate flow calculations, simulations, and pressure reports. The results arm you with confidence in the execution of your application. The analysis provides calculated flow to maintain specific required pressures throughout the system and can model liquids with significant changes in density and viscosity.

## ANIMATED MAPS, PLOTS & PIPE PROFILING

The sophisticated analysis algorithms provide animated maps, plots and pipe profiling that demonstrate intricate tank and reservoir levels, precise pump speeds, water flow or velocity rates specific to your system and surge devices. Contours and gradients provide detailed display for pipe and node attributes.



## TRANSIENT ANALYSIS

Pressure extremes always occur during a period of transient flow where pressure may exceed design limits causing undesirable or even catastrophic events. Transients can be analyzed accurately and efficiently in large, complex distribution networks to ensure a system's sanitation and longevity.