

SURGE PROTECTION SYSTEMS

The fundamental requirements of surge relief systems include:



- Fast acting, high capacity valves which can open very quickly to remove surge pressures from the line.
- And then return to the closed position quickly without causing additional pressure surge during closure.
- Indication and/or report of valve opening.

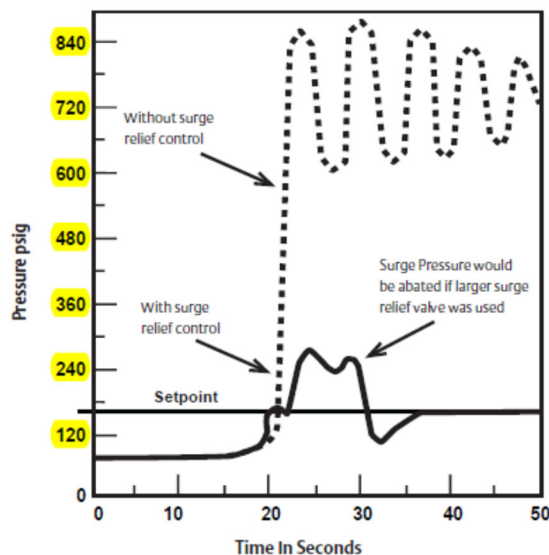
The BETSCO Surge Relief System is a fast acting relief system, keeping the user protected from the potential damage caused by pressure surges. The BETSCO Surge Relief System can either be a basic system using a valve and a Mark Panel, or a complete turnkey skid mounted system with block valves, flow switch, inlet/outlet pipe, and BETSCO Mark Panel.

PRESSURE SURGE RELIEF IS CRITICAL

Pressure surges can be generated by anything that causes the liquid velocity in a line to change quickly (e.g., valve closure or pump trip). Total surge pressure may be significantly above the maximum allowable pressure of the system, leading to serious damage to your valuable assets.

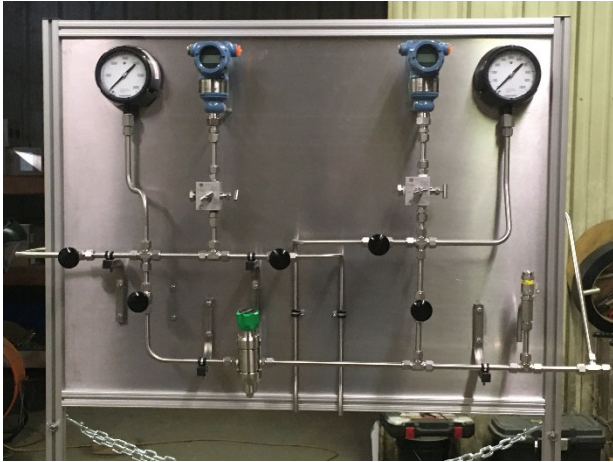
Product movement by pipeline requires over-pressure protection. Response time to pressure rise is very critical.

Department of Transportation (DOT) mandate guidelines. DOT Title 49 CFR Ch.1 Part 195.406 states: “No operator may permit the pressure in a pipeline during surges or other variations from normal operations to exceed 110% of the operating pressure limit established under paragraph (a) of this section. Each operator must provide adequate controls and protective equipment to control pressure within this limit.”



Note: Figure adapted from "Sliding-plug Surge Relief Valve Helps Meet DOT Requirements", Pipeline Industry, January 1992.

CONTROL PANEL



A control panel provides a precise output which is used to regulate the set point of a gas loaded relief valve.

Typical components provided:

- Pressure Transmitters and Gauges
- Nitrogen Supply Cylinders
- Stabilizing Plenum
- Pressure Regulator
- Panel PSV to prevent over-pressuring the control valve.

Nitrogen supply cylinders are used as a source of nitrogen and the control panel will use this to replenish the nitrogen pressure within the valve anytime it falls below the desired set point. Conversely if the set point at the valve is higher than the desired set point the control panel will relieve the excess pressure from the valve. An insulated nitrogen plenum acts as a buffer in the nitrogen gas system to keep the system operation stable.

COMPLETE SKID MOUNTED SYSTEM

BETSCO can provide a skid mounted surge relief system providing the integration of surge relief valves, manifolds, block valves and actuation control panel.



BETSCO, INC
Technology and Design

APPLICATION SURVEY FORM

Information for valve sizing

Fluid: _____ Density: _____ Viscosity: _____

Flow Rate for Surge Relief ¹: _____ (minimum) and _____ (maximum)

Control Set Point Pressure ²: _____ ANSI Rating: _____

Operating Temperature: _____ Back Pressure ³: _____

Information for Control Panel

Remote Indication of Source and Set Point Pressure (Yes or No): _____

Remote Adjustment of Pressure Set Point (Yes or No): _____

Area Electrical Classification: _____

Information for Integrated Solution

Are you interested in an integrated system? (Yes or No): _____

If you answered yes to the above question, please provide the following information.

Preferred Manufacturer and Type of Block Valves: _____

Flow Switch (Yes or No) to verify flow downstream of the relief valve: _____

Local and/or remote indication of pressure upstream of the surge relief valve: _____

Local and/or remote indication of pressure downstream of the surge relief valve: _____

Platform (Yes or No) for block valve operation: _____

Notes:

1. This is the calculated flow rate to relieve the pressure and maintain safe operation. This is not the same as the pipeline flow rate.
2. This is the maximum pressure for control to avoid damaging surge pressure.
3. This is the maximum expected pressure downstream of the surge relief valve.

Email your completed survey to sales@betsco.com. Someone will respond within 24 hours.