

**The only relief valve on the market proven to reseal after a sand slurry relief event.**



Safoco's Fracturing Relief Valve (FRV) is the safest pressure relief system on the market today. Its accuracy, reaction speed, and flow capacity are unparalleled. It increases operational efficiency by providing two valves with every unit, automatic re-close, remote operation from the data van, and the ability to reseal after a relief event on sand. And by recording data from all events, it helps engineers design better products and processes.

The Safoco FRV helps frac companies:

- Maximize frac site safety and yield
- Mitigate liabilities
- Curb non-productive time

#### Operational Description

The Safoco FRV utilizes a gate valve and is controlled by a "fail open" hydraulic actuator. Pressure is sensed by two pressure transducers. The pressure at which the valve opens and re-closes are field programmable via a keypad interface. The valve is held in the closed position with hydraulic fluid until an event causes the system to release the hydraulic fluid. The electric controls read the pressure then release the hydraulic fluid. The valve is forced into the open position immediately by the line pressure in the valve and an internal spring within the actuator. The system is completely self-contained, requiring no external power source. The relief system is monitored and controlled by an HMI system in the data van. This system records all pressure readings, settings, and events.

## Specifications and Benefits

### Electrical Controls

- Accuracy – The pressure readings have an accuracy of 0.38% at full scale and two pressure transducers are used at all times for redundancy
- Repeatability – The settings do not change and open the valve at the same setting consistently over time and in a changing environment
- Pressure Sample Rate – Pressure read every 20 MS
- Field Programmable – All features and trip settings (Open, Reclose, Automatic) can be adjusted to fit the job or well in the field
- Data Acquisition – All pressure readings, settings, and events are recorded for post-job analysis
- Remote Monitoring – With a computer in the data van, the frac supervisor can monitor all settings, pressure readings, and valve positions
- Remote Operation – The valve can be opened or closed at any time from the data van
- Easy Operation – Changing settings and operating the valve takes only seconds, increasing operation efficiency
- Testing – Functionality testing requires just a few minutes, and the test data is recorded
- Pressure Spike Filter – An optional setting can prevent any latent pressure spikes from opening the valve

### Actuator

- “Fail Open” or “Fail Safe” API 6A Hydraulic Actuator– This design has been used as a safety valve on wellheads for decades
- Internal Spring Force – An opening spring force of 5,000 LBS increases the opening speed with or without line pressure in the valve
- Pressure Assist Opening – The higher the pressure, the faster the actuator switches to the open position
- Position Indication – Visual and electrical indication of the valve position, providing the ground crew and the data van with critical information

### Hydraulic Controls

- Closing – A battery-operated pump closes the valve in three seconds, maintains consistent hydraulic pressure in any environment, and allows for remote operation
- Opening – Fast-acting relay that begins opening the valve at 40 MS

### Valve

- 1 13/16” 10k or 15k API 6A Gate Valves – Every unit comes with two valves for redundancy and increased operational efficiency
- Relief Capacity – Unit maintains pressure below 10,000 PSI on a system that is flowing over 100 BPM (see relief capacity spec sheet)
- Straight, Full-Bore Opening – Not having a 90-degree bend increases relief capacity and prevents the valve body from washing
- Seals Are Not Exposed – The sealing elements are not exposed to the relieving fluid when fully open, enabling reclose and reseal after a relief event on sand
- 410 SS Tungsten-Carbide Hard Faced Sealing Elements – This improves sealing and increases the life of the seals so multiple functionality tests and relief events will not cause resealing issues
- Pressure Assist Sealing – The higher the line pressure, the better the valve seals
- Pressure Assist Opening – The higher the line pressure, the faster the valve opens

To learn more about Safoco Controls please contact us at: 281-977-8500 or [Info@SafocoControls.com](mailto:Info@SafocoControls.com) or scan this QR Code.

