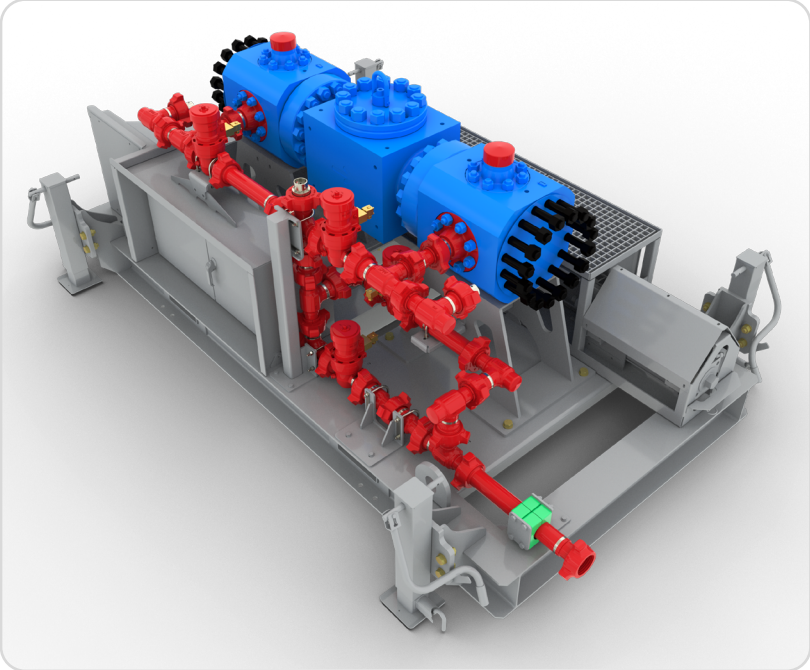
SPM™ REMOTE BLEED OFF SYSTEM

SAFE, AUTOMATED PRESSURE MANAGEMENT FOR HYDRAULIC FRACTURING APPLICATIONS

The SPM™ Remote Bleed Off System is available with an integrated SPM Simplified Frac Iron instrumentation skid or as a standalone modular package. Both offerings allow operators to bleed down to a target pressure from the manifold system – all commanded through an easy-to-use remote interface. With on-board automatic greasing and self-diagnostic abilities, users can perform critical pressure control operations remotely, while significantly decreasing safety risk. The system features alarms and alerts to communicate operational status to the user.



SUMMARY OF AUTOMATED FUNCTIONS

- **Wellhead Bleed Off** – Bleed off fluid from the the wellhead or downstream of the check valve. As discharge occurs and pressure drops, the check valve opens to equalize the pressure, effectively reducing pressure across the manifold system.
- **Manifold Bleed Off** – bleed off fluid from the upstream side of the check valve. The check valve remains closed and maintains pressure on the wellhead side as the system is depressurized on the pumping side. This function allows negative pressure tests on the check valve.
- **System Prime** – all valves opened to allow discharge of trapped air during prime up of the manifold system. Valves automatically close when the pressure reaches a set value.
- **Bypass** – opens applicable valves within the manifold to discharge fluid while bypassing chokes, allowing operator to flush excess sand and prevent undue wear on components and sand obstruction.

DESIGN FEATURES

- Remote control operation through intuitive user interface
- Intelligent pre-programmed routines including wellhead side bleed-off, manifold side bleed-off, system prime up, and dump bypass
- Integrated automatic greasing system

BENEFITS

- Enables safe operation out of the red zone
- Ensures consistent operation and eliminates potential for operator error
- System facilitates greasing maintenance of isolation valves without operator interaction