



SAFElaunch™ BALL INJECTION SYSTEM

PERFORMANCE IS MORE THAN OUR NAME



Performance Wellhead & Frac Components is a leading oil and gas service company specializing in surface well-control equipment and related field services utilized in all phases of drilling, well stimulation, production and intervention operations. We have established a **stellar reputation for providing quality, dependable equipment**, as well as **exceptional field service and support functions**.

Performance Wellhead & Frac Components offers a wide variety of ongoing technical and support services for customers, including on-site **training and evaluations, equipment maintenance and applications engineering**.

MANUFACTURING STANDARDS

All major components are manufactured per API 6A - 20th Edition or applicable industry standards.

MTRS / COCS

Hydraulic Gate Valves	API 6A-3-1-EE-P-U
Studded Tee	API 6A-1-1-DD-P-U
Weco Companion Flange	API 6A-1-1-DD-P-U
Fabricated Skid	Certified Lifting Eyes/ Forklift Slots
Rated Working Pressure	10K PSI
SL Control System	Accumulator, Diesel Powered, 4-Station, Indicator Lights
Elastomers	-50°F to +250°F

SAFELAUNCH BALL INJECTION SYSTEM

SAFElaunch1

The SAFElaunch™ Ball injection System is used in multi-stage well stimulation and completions systems that utilize multiple numbers and multiple ball sizes to facilitate movement of downhole packers and isolation seal assemblies installed in the well-bore.

Product Features:

- Ground-Skid Mounted Design for Safer Operation
- Modular Horizontal Design – Expandable to (3) Launch Stations
- Compatible with Single or Multi-Ball Seat Configuration
- Continuous Pumping During Stimulation Operations
- Rapid Change-Out of the Ball Canisters (Three Minutes)
- Ball Specific Canisters/Sleeve Inserts
- Dual Barrier/Redundant Isolation Valves
- Visual/Mechanical Deployment Verifications
- Skid Mounted Jib Crane – Simplistic Installation/Removal During Reload

SAFElaunch2

Ball Deployment System - A simplified version of our field proven, patented, frac ball deployment system, at a “fraction of the cost” of the industry standard stack mounted designs.

Product Features:

- SAFETY – Frac Balls are loaded and deployed outside the “Red Zone”
- Grounded Skid-Mounted Horizontal Design – Elimination of Manlifts
- Dual Isolation Hydraulic Gate Valves
- Minimum Service Requirements (System R/U Test – 1.75 Hours and System R/D – 1.5 Hours)
- Visual Launch Verification (2)
- Simultaneous Pumping Operations
- Time Savings – SL2 vs. Manual Drop (35-45 Minutes Per-Stage)
- SAFEdrift™ Hard-Pipe Delivery System
- Standard Accumulator
- Low Maintenance Requirements

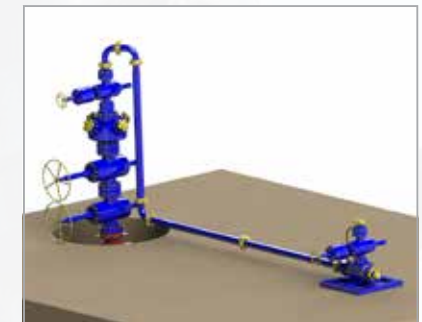
ENHANCED SAFETY FEATURES

The SL1 and SL2 Ball Deployment Systems incorporate numerous key safety features that eliminates the possibility of accidental ball deployment, as well as keeps field personnel isolated from the danger zone during stimulation operations. In addition, the SL2 system is ideal for operators utilizing dissolvable frac balls. The launch chamber is isolated from well bore fluid until time of deployment

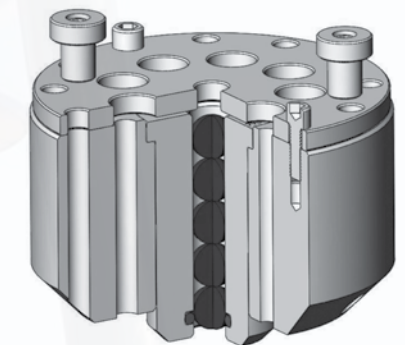
- Modular Design to enable operators to setup a designated area outside of the danger zone
- Dual Barrier to Redundant Isolation Valves to isolates system from stimulation operations
- Visual and Mechanical Deployment Verification
- SAFElaunch™ (SL) Control System provides the actuation power source and electronic control and utilizes a combination of electric over hydraulic valves and indicator lights to manage all hydraulic functions of the system. Design safety features are in place to prevent accidental launch.
- Ball Specific Canister and Sleeves to significantly reduce the possibility of deploying the wrong size ball.



SINGLE LAUNCH STATION (SL1)



SINGLE LAUNCH STATION (SL2)



BALL CANISTER WITH BALL SPECIFIC SLEEVE



SIZED SLEEVE TRAY/HOLDER

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