

Falcon

Multistage stimulation system

APPLICATIONS

- Horizontal, deviated, and vertical wells for
 - multistage fracturing
 - isolated matrix acidizing treatments
 - stimulation when a well has casing integrity issues
 - stimulation of sandstone, carbonate, and shale plays

BENEFITS

- Single-trip installation that reduces rig time and operational risks
- Improved efficiencies due to modular design that accommodates multiple configurations and last-minute modifications
- Reduced costs with elimination of wireline and coiled tubing operations

FEATURES

- ELEMENTAL* degradable technology frac balls, which eliminate the need to flow back or mill frac balls after fracturing operations
- Seat geometry that promotes ball flowback at lower pressures during fracture cleanup
- Drillable seats for fullbore access and increased production output
- Reclosable ball-actuated frac valves for zonal shutoff after fracturing
- Delayed swelling of swell packers for reduced risk of premature setting

Falcon* multistage stimulation system isolates zones and enables them to be treated continuously during matrix acidizing stimulation or hydraulic fracturing treatments in horizontal, deviated, and vertical wells. The system uses swellable or hydraulically set packers between zones for isolation. Balls with gradually increasing diameters are dropped from surface to enable treatment of successive zones.

Flow-through circulating and hydraulically actuated frac valves

The flow-through circulating valve enables circulation while the system is being run in the hole. When the liner reaches the desired position, a ball is dropped from surface and pumped down until it lands on the ball seat, permanently closing the circulation valve. Pressure can then build up to set the hydraulic packers and actuate the hydraulic frac valve, enabling communication with the first fracture zone.

Hydraulically set and swellable packers

Falcon system packer elements are engineered from a complex polymer suited for high-pressure applications to achieve sealing during stimulation as well as production. Hydraulically set packers use pressure to activate a positive-lock mechanism that expands the packer element, sealing against the formation.

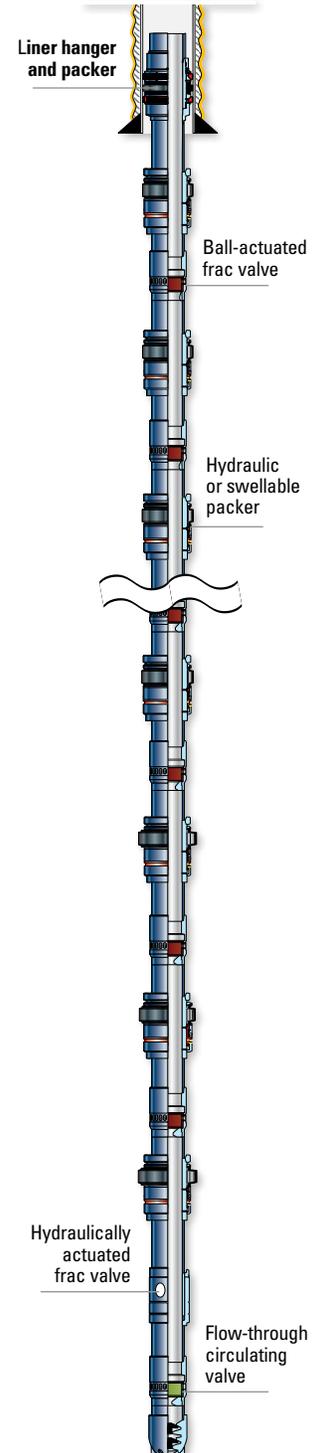
ResPack* swellable bonded-to-pipe packers are designed to swell on contact with fluid — water or oil. The elastomer is bonded directly onto the basepipe. An integral delay mechanism engineered into the polymer minimizes the risk of premature swelling and setting without the need for any additional exterior coating. The packer has no moving parts.

Ball-actuated frac valve

Progressively larger balls are dropped from surface to seat in and shift open the ball-actuated frac valves, establishing communication with the zones of interest. The frac valves use spherical ball-seat geometry to prevent stuck balls during fracturing and the consequent loss of production from the zones below. Use of ELEMENTAL degradable technology frac balls eliminates the need to flow back or mill the balls after fracturing because they degrade predictably and fully at bottomhole conditions.

Liner-top packer

With a full range of liner hanger assemblies and liner-top packers within the Falcon system portfolio, a fit-for-purpose solution can be provided for the deployment of stimulation systems and securing of the system in the well. The liner-top packer elements are ISO 14310 V3 qualified. The liner hanger system can be deployed via a mechanical right-hand-release running tool (RRT), hydraulic collet running tool (CRT), or latchdown tool. Optional sealing bores of various lengths are available for liner tieback in latched or unlatched seal assembly applications.



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