

Falcon

Uncemented multistage stimulation system

APPLICATIONS

- Uncemented horizontal, deviated, and vertical wells for
 - zonal isolation during 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 due to the elimination of wireline, cementing, and coiled tubing operations

FEATURES

- ELEMENTAL* degradable technology frac balls, which eliminate the need to flow back or mill frac balls after the fracturing operations
- Seat geometry that promotes ball flowback at lower pressures during fracture cleanup
- Drillable seats and balls 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

The Falcon* multistage stimulation system isolates zones during treatment operations in uncemented horizontal, deviated, and vertical wells. The system uses swellable or hydraulically set packers between zones for isolation. These zones will be treated continuously, replacing up to 20 stages. Balls with gradually increasing diameters are dropped from the surface to activate individual stages. The Falcon system can be used with wells requiring matrix acidizing stimulation or hydraulic fracturing treatments.

Flow-through circulating and hydraulic-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 the 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 to actuate the hydraulic frac valve, allowing communication to be established with the first fracture zone.

Hydraulically set and swellable packers

Falcon 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 rock.

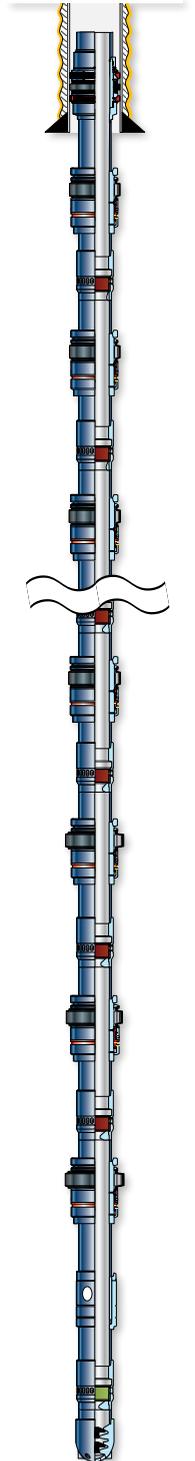
The ResPack* swellable bonded-to-pipe packer is designed to swell on contact with fluid—water or oil. The elastomer is bonded directly onto the basepipe. An integral delay mechanism engineered into the polymer of the packer minimizes the risk of premature swelling and setting without the need for any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

Ball-actuated frac valve

Progressively larger balls are dropped from the surface to seat in and shift open the ball-actuated frac valves, establishing communication with the formation. The frac valve uses spherical ball-seat geometry to prevent stuck balls during fracturing and the consequent loss of production from the zones below. The use of ELEMENTAL degradable technology frac balls eliminates the need to flow back or mill the frac balls after fracturing as 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 openhole stimulation systems and the securing of the system in the well. The packer elements are ISO 14310 V3 qualified. The system can be deployed via either a mechanical right-hand release running tool (RRT), a hydraulic collet-running tool (CRT), or a latchdown tool. Optional sealing bores of various lengths are available for liner tieback in latched or unlatched seal assembly applications.



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