RFID-Operated Stimulation Valve

Provides compartmental tubing isolation and fracture fluid diversion

Applications

- Fracturing and stimulation

Features and Benefits

- Remote intervention-less operation eliminates the need for intervention services and crew, improving health, safety and environmental concerns while saving operating costs.
- Facilitates selective compartmental stimulation, reducing fluid costs and increasing treatment efficiency.
- Eliminates the need to drop balls providing a monobore completion, removing the need to mill out balls and seats.
- No limitation to the number of compartments that can be treated.
- Optimizes treatment flow rates whilst minimizing pressure drop, reducing surface pump power requirements.
- Fall-Through-Flapper technology releases any fill and leaves a flush bore when opened after treatment is complete.
- Post treatment monobore completion, optimizes production flow area and facilitates planned intervention access with no milling.
- Onboard clean hydraulic reservoir built in as standard, is debris tolerant, providing operational reliability.
- Mechanical contingency built in as standard.
- Set up in the factory to customer requirements minimizing non-productive time.
- Simple, user-friendly, transferable operation provides simple, flexible, programmable, operating logic, providing operational efficiency.

Tool Description

The Weatherford RFID-operated simulation valve is an intervention-less temporary barrier device that facilitates selective placement of fracturing and stimulation fluids into discreet compartments of the reservoir, providing an alternative to graduated ball drop stimulation systems and the limitations associated with them. The use of the simulation valve provides no limitation to the number of compartments and provides a monobore completion, ensuring optimized fluid placement rates with minimized power from the surface pumping systems and eliminates the need to mill out balls and seats.

The Weatherford RFID-operated stimulation valve provides compartmental tubing isolation and fracture fluid diversion when combined with a frac sleeve.

Weatherford®

RFID-Operated Stimulation Valve

Tool Description (continued)

The stimulation valve contains an RFID communication system, battery power, clean hydraulic reservoir, and a patented fall through flapper valve. The stimulation valve, or a series of stimulation valves, are pre-programmed to client specific applications. They are run in the open position and closed as per the operator's preferred logic by either circulating RFID tags, frequency modulated pressure signatures, timers, or a combination of the actuation options. Post treatment, the stimulation valves are then re-opened via frequency-modulated pressure signatures, timers, or a combination of both.

During opening, the flapper falls through releasing any fill. The upper flow tube retains the flapper in its housing leaving a monobore completion to optimize the production flow area and facilitate any planned future intervention operations.

Primarily designed for lower completion applications, the robustly constructed stimulation valve has been designed with debris, mud solids and cement in mind. The internal operating mechanism is contained out with the flow path. The debris-tolerant tool does not rely on any debris-sensitive springs, check valves or complex piston arrangements during operation. The reliability is not compromised by the need for pre-charged or well-sensitive piston chambers.

Specifications

Size in. (mm)	Max. OD in. (mm)	Min. ID in. (mm)	Flapper Pressure Rating psi (MPa)	Absolute Pressure Rating psi (MPa)	Temperature °F (°C)	Connections
4.50 (114.30)	5.65 (143.51)	2.50 (63.75)	10,000 (68.9)	16,200 (111.69)	39-275 (4-135)	4-1/2" Premium

Note: Client specific specification variants are available on request.