Reservoir Isolation Tool

ITEM DESCRIPTION	Reservoir Isolation Tool
SIZE	8.00" x 4.50"
REVISION	1.00

Description

The Reservoir Isolation Tool (RIT) is a bidirectional ball valve system which can hold pressure from above and below. The RIT can be remotely open by user defined cycles and it can independently be open and close via matching shifting tool.

The RIT Reservoir isolation tool is a bidirectional barrier valve used in oil and gas wells to isolate reservoir fluids in the lower completion. It features a sealing ball design providing a higher differential pressure rating compared to flapper-type fluid loss prevention devices.

It meets and exceeds API 19V/ISO 28781 V3 standards, making it suitable for various applications, including intelligent, multizone, gravel-pack, frac-pack, stand-alone screen completions, as well as suspension and temporary abandonment of wells in challenging environments like deepwater and underbalanced perforating.

The valve's opening and closing mechanisms are notable. It employs customizable one-time remote-opening mechanism, eliminating the need for intervention to open the valve. Tubing pressure cycles are applied to trigger the opening mechanism, allowing testing of various components before reconnecting with the reservoir.

Additionally, the RIT can be opened and closed mechanically multiple times using a shifting tool, before or after the remote actuation, which can be run at the end of a washpipe, perforating string, or coiled tubing. The shifting tool engages the valve's shifting profile to open or close the ball valve.

Applications

- Production
- Injection
- Zonal Isolation
- Gravel Pack Completions
- Condensate wells

Benefits

- Prevents formation damage and fluid loss
- Eliminates additional interventions intervention less design
- Provides downhole barrier
- Reliable design

Features

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Configurable Counting Mechanism

High Force Remote Actuation



Operates with tubing pressure cycles to initiate remote opening of the ball valve assembly. System operates consistently, independent of TVD as the system is balanced with annulus pressure. The counter is initiated by the first high pressure cycle with is set with a externally replaceable rupture disk, ensuring internals stay clean and debris free until initiation sequence commences.



High force actuator opens ball valve utilizing Annulus hydrostatic Pressure. Connected in-line with integral hydraulic dampening unit, force is delivered in a controlled state as to not damage internal components due to otherwise high inertia values.

Collet Profile Sleeve



High debris tolerant design. Full drift profile works in conjunction with Collet Shifting tool to ensure consistent latching and releases. Built in permanent profile ensures a secondary method of manipulating the Sleeve if Dynamic Profiles become damaged.



• Pressure Differential Compensated Ball Valve

Ball valve features Balancing double piston design which increases sealing force if pressure is higher form above or below the ball.

• Remote Actuation Defeat System



Once the Remote activation has completed the opening process, continued motion through this mechanism releases the engagement from the actuating assembly. This ensures that closing the valve post remote opening is as easy as initial open and close cycles.

• Special Disconnect Mechanism

After remote open of the RIT there is a special mechanism that disconnects the manual shifting sleeve from the remote actuator. This allows the valve to be further manually operated after the remote shift.

• Superior Debris Management



Throughout the RIT assembly, state of the art debris relief designed components ensure a highly reliable and smooth-running system in the worst possible environments.

• Flexible Pressure Cycle System



The flexible cycle system provides the customer a customizable remote pressure operated cycles for each Reservoir Isolation Tool.

Specifications

Outside Diameter	8.00 in. (203.2 mm)
Inside Diameter	4.50 in. (114.3 mm)
Overall length	242.90 in. (6.17 m)
Material	13Cr 80 ksi
Max Tensile Load	530 000 lbf
Max Burst Pressure	6500 psi (45 MPa)
Max Collapse Pressure	6500 psi (45 MPa)
Weight	1832 lb (830 kg)
Qualifications	ISO 28781:2010 or API Spec 19V