FloReg™ RFID-Enabled Inflow Control Device

Reduces completion time and risk with remote-controlled actuation

Applications

- Horizontal wells
- Production and injection scenarios
- Closed-system for running in hole and installation

Features and Benefits

- The FloReg radio-frequency identification (RFID) inflow control device (ICD) improves reservoir drainage and enhances mechanical integrity, which extends the life of the well.
- An unalterable permanent serial code prevents tampering with RFID functionality to enhance operational security.
- RFID tags can be hidden or embedded in most materials and require no line or sight, which improves longevity and readability when submerged or covered with dirt.
- The RFID technology eliminates washpipe and associated handling issues, which improves efficiency.
- The ICD, in conjunction with RFID technology, permits effective fluid/breaker sweep and a well-control circulation path without a washpipe at the time of installation to enhance operational efficiency.
- The efficiency of RFID technology reduces operational time, which minimizes overall health, safety, and environmental concerns at the rigsite.
- RFID technology enables using simple, direct-pressure operation, sequenced ICDs, and open-on-demand ICD stations for improved operational flexibility.
- Modular architecture can be employed, which permits easy integration of annular zonal isolation technologies in any configuration.
- The number of open flow ports within the ICD section can be adjusted to the prescribed setting based on the latest data at the surface, either before shipment or on the pipe rack, which saves valuable rig time and associated costs.
- Tungsten-carbide flow ports mitigate flow-induced erosion for long-term durability.

Tool Description

The Weatherford FloReg RFID-enabled ICD improves well control and management without intervention. The device reduces the tendency of early water or gas production, which enables selective cleanup and stimulation without requiring control lines or intervention.

The Weatherford FloReg RFID-enabled ICD increases efficiency to reduce completion time.

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Tool Description (continued)

The FloReg RFID ICD combines the Weatherford FloReg ICD with Petrowell RFID technology for maximum reservoir management. RFID technology uses radio frequency (RF) communication to automatically identify, track, and function. The combination of these technologies enables the operator to control opening of the ICD. Coded tags provide the ability to reprogram the ICD to accelerate or delay opening. The tag, which contains an electronic circuit (transponder), is programmed with specific information. The reader generates an RF field that powers up the tag and causes it to pulse RF for continuous data transmission. The reader then captures and processes the data. The small size of the tag enables freedom of movement without direct contact with each device to enhance convenience and flexibility.

The system can be retrofitted with a range of Weatherford screens.

Specifications

Size	4-1/2 in.	5-1/2 in.	7 in.
Suitable screen selection	Metal-mesh and wire-wrap screens		
Overall tool length*	75.560 in. (1,919.224 mm)		
OD	5.63in. (143.00 mm)	8.00in. (203.20 mm)	—
ID	4.00 in. (101.60 mm)	4.56 in. (115.82 mm)	—
Flow port quantity**	20		
Flow port sizes	0.125 or 0.094 in. (3.175 or 2.381 mm)		
Length of flow port	0.50 in. (12.70 mm)		
Flow port material	Tungsten carbide		
Base material	1% Chrome 4140		
Stress intensity	80 ksi (551.60 MPa)		
Elastomer material***	260 HNBR 90D		

*The screen section is not included in the overall length.
**An alternative quantity of ports can be provided to suit the application.
***An alternative elastomer material is available.