

AFIV Annular-Controlled Formation Isolation Valve

APPLICATIONS

- Fluid-loss control
- Underbalanced perforating
- Two-way well-control barrier valve
- Multiple-zone completions
- Intelligent completions
- High-pressure, high-temperature environments
- Well suspension and temporary abandonment operations
- Workover operations

BENEFITS

- Improves well productivity
- Minimizes interventions
- Reduces intervention costs
- Minimizes fluid loss

FEATURES

- One-time opening using pressure cycles
- Completion fluid placement after sleeve closure
- Unlimited mechanical openings and closings
- Bidirectional pressure-sealing barrier sleeve

The AFIV* annular-controlled FIV valve is a shrouded version of the FIV* Formation Isolation Valve.

It is used in selective multiple-zone intelligent completions and uses a sleeve-type barrier, not a ball, to isolate the tubing from the annulus. This isolation valve protects formations from damage resulting from fluid loss during completions and workover operations. Suitable for high-pressure, high-temperature environments, the AFIV valve serves as a barrier to isolate reservoir fluids within the lower completion while production tubing is being run. By isolating the formation from damaging fluids, the AFIV valve enhances production, simplifies completion operations, and increases wellbore safety. The fit-for-purpose AFIV tool has developed a remarkable record for robust and reliable service and has become a key component in intelligent multiple-zone completions.

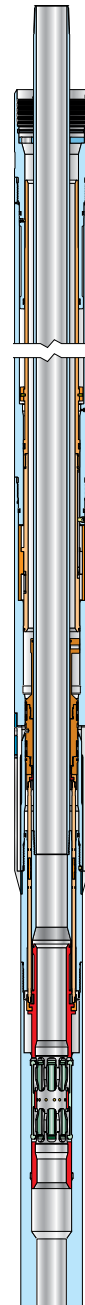
This versatile valve system, based on award-winning technology for offshore safety innovation, makes it possible for operators to have a high level of confidence in formation protection. Other AFIV valve applications include suspension or temporary abandonment of a well and high-differential fluid-loss control.

OPERATION

One of the main benefits of the AFIV valve is that it can be opened and closed mechanically and opened remotely without intervention.

To operate it mechanically, the operator runs a shifting tool at the end of wash pipe, perforating string, or coiled tubing. When the shifting tool is passed through the valve, the barrier sleeve either opens or closes, and the shifting tool unlatches from the latch collet of the valve, allowing retrieval.

The Trip Saver* one-time remote-opening feature enables the operator to open the valve without conventional intervention techniques. Cycles of tubing pressure, in a number predetermined by an integral indexing mechanism, are applied against the closed valve. When the indexing mechanism reaches the opening cycle, the Trip Saver feature actuates, opening the valve. The valve opens when the applied tubing pressure is bled off. The Trip Saver feature allows the operator to pressure test the tubing, set and test the packer, and test the tubing hanger before reestablishing communication with the reservoir.



AFIV annular-controlled FIV valve.

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QUALIFICATION

The AFIV tool incorporates enhanced design features to further increase the already outstanding performance of the tool. All AFIV valves are qualified and tested at assembly to meet stringent acceptance requirements. The tight acceptance criteria enable the tool to be used as a barrier for well intervention operations and for long-term suspension.

OPTIONAL FEATURES

The AFIV valve is available with or without a permanent lock-out feature. The lock-out is activated after the Trip Saver feature is activated. It permanently locks the mechanical section of the valve in the open position. The AFIV valve is available with either a 10- or a 15-cycle Trip Saver system, the 15-cycle version allowing for more flexibility with completion operations.

Specifications

Casing size, mm [in]	244.4 [9.652]	273.1 [10.750]
Max OD, mm [in]	207.7 [8.180]	237.2 [9.340]
Min ID, mm [in]	74.6 [2.940]	93.9 [3.700]
Differential pressure rating—body, MPa [psi]	344.7 [5,000]	344.7 [5,000]
Differential pressure rating—ball, MPa [psi]	344.7 [5,000]	344.7 [5,000]
Max temperature, degC [degF]	93.3 [200]	121.1 [250]

Other sizes, temperatures, and pressure ratings available on request. Contact your local Schlumberger representative.

www.slb.com/completions

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