

MFIV II Formation Isolation Valve

APPLICATIONS

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

BENEFITS

- Improves well productivity
- Reduces rig time
- Minimizes fluid loss
- Optimizes completion operations
- Improves safety when perforating
- Allows multiple perforating runs without killing the well

FEATURES

- Design based on field-proven drillstem test technology
- Completion fluid placement after ball closure
- Unlimited mechanical openings and closings
- Bidirectional pressure-sealing ball
- Debris-tolerant ball valve

The MFIV* II mechanical FIV valve protects formations from fluid-loss damage during completions and workover operations.

This valve is the mechanical version of the FIV* II Formation Isolation Valve, and it evolved from the MFIV mechanical formation isolation valve. Suitable for HPHT environments, the MFIV II valve serves as a bidirectional barrier to isolate the reservoir fluids within the lower completion. By isolating the formation from damaging fluids, the MFIV II valve enhances production, optimizes completion operations, and increases wellbore safety.

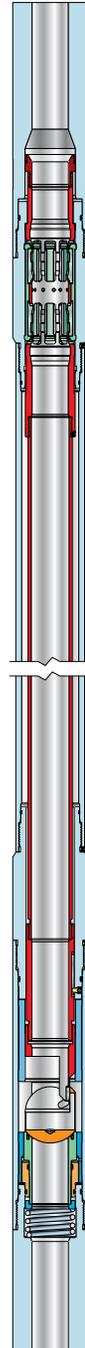
The valve has developed a remarkable record for robust construction and reliable service. With its ability to hold pressures from above and below, the MFIV II valve has become a key component in completion designs. It can also be used as a downhole lubricator to enable long strings of service equipment to be run and retrieved while the formation is completely isolated. It provides a two-way barrier for workovers of electric submersible pumps or similar operations, underbalanced drilling, and general completion operations. It can also be used to suspend or temporarily abandon a well.

This versatile valve, based on award-winning technology for offshore safety innovation, makes it possible for operators to have a high level of confidence in formation isolation. The reliability of MFIV II technology has also extended the valve's use both to remedial workovers in which the valve is used to isolate the formation during removal and to reinstallation of an electric submersible pump or production tubing.

The sealing ball design of the MFIV II valve is a larger version of the field-proven Schlumberger HPHT drillstem test ball valve with gas-tight seal. The MFIV II valve has a higher differential rating than a flapper-type fluid-loss device.

OPERATION

The MFIV II valve is opened and closed mechanically with a dedicated shifting tool. To operate it, 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 ball either opens or closes with a gas-tight seal, and the shifting tool unlatches from the latch collet of the valve, allowing retrieval.



MFIV II mechanical FIV valve.

MFIV II Formation Isolation Valve

QUALIFICATION

The MFIV II valve incorporates enhanced design features to further increase the already outstanding performance of the valve. It also benefits from qualification that exceeds the latest industry requirements. For example, the MFIV II valves are qualified with gas to a zero-bubble leak rate across the ball sealing mechanism. This tight acceptance criterion enables the valve to be used as a barrier for well intervention operations and for long-term suspension.

OPTIONAL FEATURES

The MFIV II valve is available with extension lengths from 3 ft to 9 ft, the standard being 6 ft.

Specifications

Casing size, mm [in]	177.8 [7.000]	244.4 [9.652]	244.4 [9.652]	244.4 [9.652]	273.1 [10.750]
Max. OD, mm [in]	139.7 [5.500]	193.8 [7.630]	196.8 [7.750]	203.2 [8.000]	237.2 [9.340]
Min. ID, mm [in]	74.7 [2.940]	93.9 [3.700]	103.1 [4.060]	115.8 [4.560]	142.2 [5.600]
Differential pressure rating—body, MPa [psi]	620.5 [9,000]	551.6 [8,000]	344.7 [5,000]	344.7 [5,000]	344.7 [5,000]
Differential pressure rating—ball, MPa [psi]	413.7 [6,000]	344.7 [5,000]	344.7 [5,000]	344.7 [5,000]	344.7 [5,000]
Max. temperature, degC [degF]	148.8 [300]	148.8 [300]	93.3 [200]	148.8 [300]	93.3 [200]

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

www.slb.com/completions

Schlumberger