



### *FormationSaver™ Lockout Tool*

Weatherford's *FormationSaver* lockout tool is an advanced design check valve that is typically installed below an electric submersible pump (ESP) to protect against formation-damaging fluid loss. High-performance features set the *FormationSaver* valve apart from conventional check valves. It uses three triangular actuator flappers that are spring-biased closed and a safety-valve flapper. This design gives the valve self-piloting capability, allowing total remote actuation of the valve and eliminating the dependence on hydraulic control lines and other mechanical components. The flapper has proven to be one of the industry's most reliable, durable, and effective sealing devices.

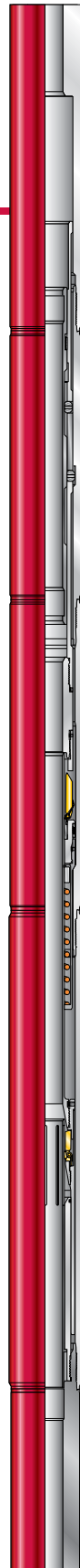
The *FormationSaver* lockout tool uses the shifting tool to lock the flappers open and return them to the self-piloting position—enabling the valve to be locked open, the intervention tools to be run, and the valve to return to autopilot in a single trip.

#### *Applications*

- Wells using an ESP (to prevent formation-damaging fluid loss when pulling the pump)
- Packer setting (when run below a packer, applied pressure sets the packer, production opens the flapper providing full ID and tool can be locked open during intervention)
- Multilateral completions (installed in each lateral to prevent crossflow)
- High-rate flowing applications

#### *Features, Advantages and Benefits*

- The *FormationSaver* lockout tool eliminates damaging fluid loss to the formation and associated losses in overall well productivity. Valuable ESP rotating days are spent producing crude rather than cleaning out fluids lost to the formation.
- The *FormationSaver* lockout tool increases ESP life by preventing the reverse of pump rotors.
- The self-piloting tri-flapper closure mechanism is actuated by reversing the flow of fluid. Self-piloting enhances sealing reliability by eliminating hydraulic or mechanical controls and external signals.
- All sealing components, including the surface of the main flapper (API qualified), are protected from erosive effects by the flow tube. This patented design reduces seal damage and solids deposition to ensure greater reliability and longer life than industry standard ball-and-seat configurations.





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### Features, Advantages and Benefits (continued)

- The tri-flapper design's full-bore unrestricted ID automatically opens or closes the valve with minimal pressure drop while providing maximum sealing ability to protect the reservoir.
- The self-piloting design enables installation below ESPs in two-trip completion or below a packer, enabling unlimited setting depths.

### Specifications

Dimensions (in./mm)	7 × 3-1/2 177.8 × 88.9	9-5/8 × 4-1/2 244.5 × 114.3
<b>Casing</b>		
Size (in./mm)	7.0 177.8	9-5/8 244.5
Weight (lb/kg)	29 13.2	47 21.3
<b>Tubing</b>		
Size (in./mm)	3-1/2 88.9	4-1/2 114.3
Weight (lb/kg)	9.2 4.2	12.6 5.7
Burst pressure rating (psi/MPa)	7,500 52	
Collapse pressure rating (psi/MPa)	7,500 52	
Maximum temperature rating (°F/°C)	375° 191°	
Metallic material	13 CR 80 ksi	
Metallic coating	Q.P.Q. process	
<b>Non-Elastomer material</b>		
Wipers	Peek	
Flapper seal	Teflon	
Maximum OD (in./mm)	5.50 139.70	8.25 209.55
Overall length (in./mm)	135 3,429	145 3,683
Minimum ID (in./mm)	2.750 196.85	3.812 96.82
Tensile rating (lb/kg)	250,000 113,398	300,000 136,078