



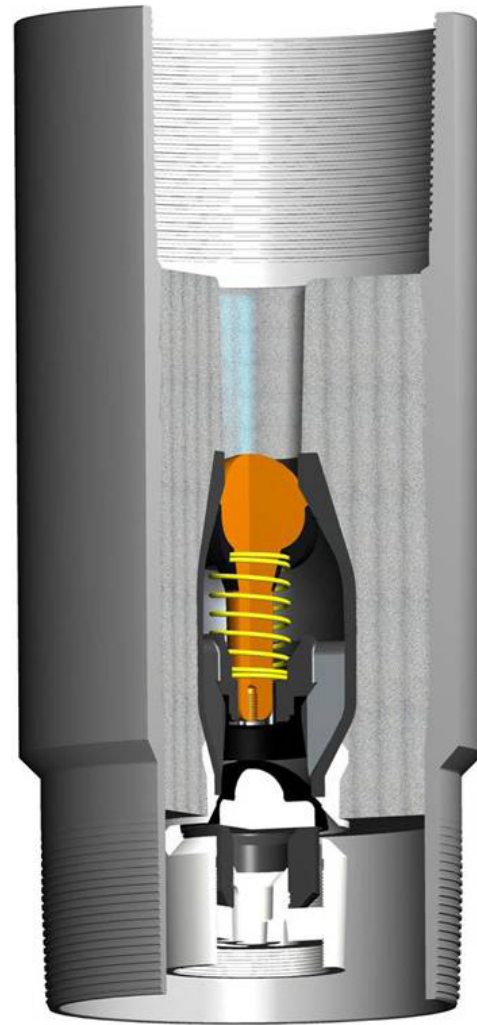
Regulated Opening Pressure Valve

Weatherford's regulated opening pressure (ROP) valve was specifically designed for use with 3 1/4-in. Sure-Seal™ 3 valves to regulate annular pressures within wellbores. Suitable for 7-in. and larger casing strings, the ROP valve significantly reduces the time required to circulate high-density mud into the wellbore annulus during a well-control event.

The ROP valve incorporates Weatherford's field-proven Sure-Seal 3 valve and a secondary valve that is opened within a regulated-pressure range. The Sure-Seal 3 valve prevents backflow when running casing and during cementing operations. The secondary valve retains high-density fluid volumes within the casing above the float equipment, enabling immediate circulation of higher-density fluids in the event a kick is experienced.

Applications

- Wells anticipating high pressures and/or kicks while running casing
- Wells with low fluid levels
- Casing strings 7-in. or larger encountering low-density fluids such as sea water and pressure sensitive formations
- Deployed with Weatherford's Model 408 float collar or Model 308 float shoe
- Wells requiring the need to reduce free-fall effects of cement, particularly at low displacement rates



Features, Advantages and Benefits

- The ROP valve continues to retain high-density or high-level fluids within the casing after circulating, with flow rates up to 6 BPM (0.1 m³/min), minimizing mud loss.
- Cast-aluminum body and rubber-coated seal are PDC-drillable, easing drill out.

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Features, Advantages and Benefits (continued)

- Standard setting enables 70- to 120-psi (0.48- to 0.82-MPa) opening differential pressures, enabling the casing to retain more fluid during run-in, saving time to circulate fluid and control well kicks.
- The flow area of the secondary valve is equal to the flow areas of the incorporated Sure-Seal™ 3 valve, enabling wellbore fluids to flow through the valves with less restriction as the flow rate is increased.
- The hydrogenated-nitrile-rubber (HNBR) spring element is adjustable, enabling the opening differential pressure to be altered.
- The ROP valve establishes fluid communication when a preset differential pressure is met, permitting flow through the casing to conduct cementing operations. The *Sure-Seal* 3 valve prevents cement backflow from re-entering the casing ID.
- The field-proven *Sure-Seal* 3 valve is rated to American Petroleum Institute Recommended Practice 10F (API RP10F), category IIIC, the highest rating for flow endurance and high pressure, high-temperature testing.

Specifications

Float-Equipment Casing Size (in.)	Plug Bump-Pressure Rating (psi/MPa)	Back-Pressure Rating (psi/MPa)
7	6,800 44.88	5,000 34.47
7 5/8	6,500 44.82	5,000 34.47
8 5/8	6,400 44.13	5,000 34.47
9 5/8	6,400 44.13	5,000 34.47
10 3/4	5,000 34.47	4,000 27.58
11 3/4	4,500 31.03	3,600 24.82
13 3/8	3,200 22.06	3,600 24.82
16	2,000 13.79	2,000 13.79
18 5/8	1,500 10.34	1,700 11.72
20	1,500 10.34	1,700 11.72