

COMPLETION SOLUTIONS | SUBSURFACE SAFETY VALVES

DepthStar[®] Tubing-Retrievable Safety Valve

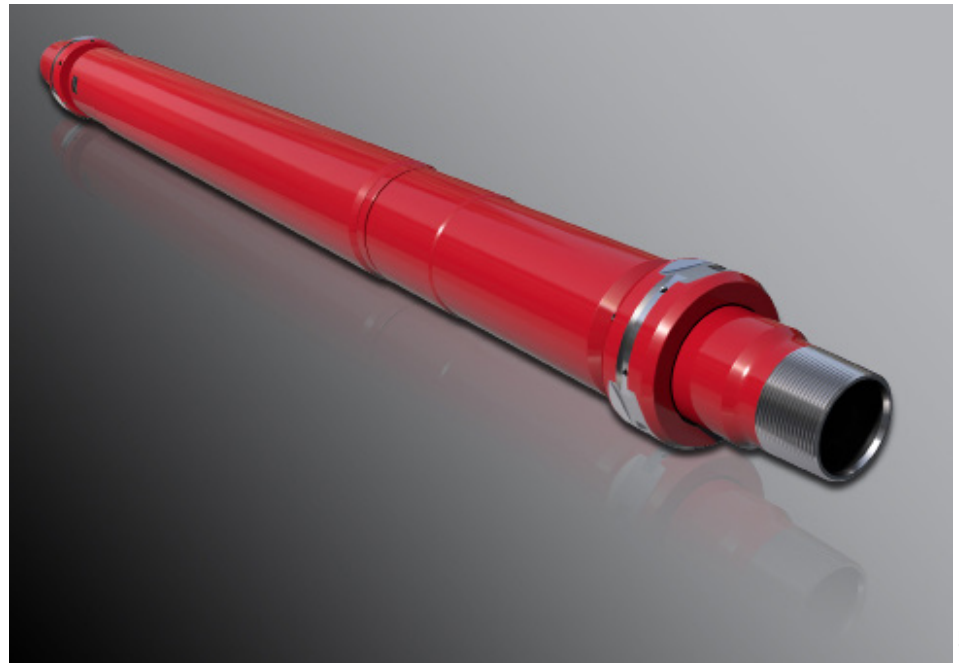
Helps eliminate setting depth constraints, increase reliability, and reduce capex

FEATURES

- No moving seals exposed to the tubing wellbore
- 100% MTM sealing within the tubing wellbore
- 100% isolation of hydraulic actuator piston from wellbore
- Less than 5,000-psi maximum valve opening capability, regardless of setting depth or pressure
- Minimized number of body connections
- Proven MTM, non-elastomer hydraulic actuator
- Isolated flow tube

BENEFITS

- No possibility of tubing to control line leakage
- Low hydraulic operating pressure
- Unconstrained valve setting depth
- Optimum reliability and durability
- Superior well containment and safety
- Increased valve life



HCT1882

Overview

The DepthStar[®] tubing-retrievable safety valve (TRSV) is a revolutionary concept in the realm of surface-controlled subsurface safety valves. Unlike other TRSVs, the DepthStar TRSV functions completely independent of well pressure; therefore, it can operate at consistently low hydraulic pressures, which makes it an ideal solution for deepwater, ultra-deepwater, high-pressure/high-temperature (HP/HT), and gas storage applications.

Previous, solutions for wellbore isolation of the piston required additional seals and/or gas-charged chambers, heavily dependent on elastomeric seals and the permanent, long-term containment of a dome charge. The DepthStar TRSV, through a revolutionary magnetic coupler, allows the hydraulic actuator to be positioned completely out of the tubing wellbore.

By repositioning the hydraulic actuator outside the tubing wellbore, the DepthStar TRSV became the first global 100% metal-to-metal (MTM) safety valve that contains no moving seals within the tubing wellbore. This reduction in seals, combined with an intrinsically simple design, makes the DepthStar TRSV inherently reliable.

Testing and Application

Using a unique magnetic coupler, the actuation piston and hydraulic operating system connected to the DepthStar® TRSV are isolated from the tubing wellbore. The outer and inner magnetic sleeves are separated by a well pressure-containing housing, which creates a chamber for the actuating piston that is absolutely isolated from the wellbore. The magnetic coupler makes it possible to completely remove all moving seals normally part of a subsurface safety valve (SSSV) from the wellbore environment.

The DepthStar TRSV was subjected to tests specifically related to the magnetic coupler to determine whether there would be any effect on through-tubing operations. For example, electric coils, perforator detonators, collar locators, thermal multi-decay logging tools, memory gauges, metal shavings, DPU® downhole power unit, RMT Elite™ reservoir monitor tool, firing heads, hostile gamma neutron tools, tubing-encapsulated conductor (TEC) line, and fiber-optic cables were run through the DepthStar TRSV. All tools performed normally with no affect attributed the magnetic coupler.

The unique DepthStar TRSV design provides the flexibility to place the SSSV at a depth based on the completion requirements and objectives — not on the safety valve limitations.

DepthStar® TRSV Specifications

TUBING SIZE, IN. (MM)	MAXIMUM OD, IN. (MM)	INTERNAL PACKING BORE, IN. (MM)	PRESSURE RATING, PSI (MPA)
4 1/2 (114.3)	7.87 (199.89)	3.813 (96.85)	7,500 (51.71) - 10,000 (68.95)
	7.87 (199.89)	3.562 (90.47)	15,000 (103.42)
5 1/2 (139.7)	8.62 (218.95)	4.562 (115.87)	7,500 (51.71) - 12,500 (86.18)

These ratings are guidelines only. For more information, contact your local Halliburton representative.

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