DATA SHEET

HALLIBURTON

LOW CARBON SOLUTIONS | CCUS

NeoStar® CS tubing-retrievable safety valve

Safety valve solutions for carbon capture, utilization, and storage (CCUS)

FEATURES

- Low-temperature, non-elastomer dynamic piston seals
- API validated
- Non-equalizing for CCUS environments
- MTM static seal at upper and lower piston positions
- MTM body joints
- Concentric thrust bearing
- Cleanout ports in flow tube's upper end
- Internal exercise profile
- Flow tube shock absorber

BENEFITS

- Hydraulic actuator seal system verified gas-tight
- Control line isolated from well fluid by MTM seal with valve in closed position
- Hydraulic system isolated from well pressure by MTM seal with valve in open position
- MTM thread sealing and self-locking capability

APPLICATION

- CCUS where low-temperature service, reliability, and longevity are key to success

Overview

The Halliburton NeoStar® CS tubing retrievable safety valve (TRSV) single rod-piston non-elastomer flapper valve is designed for hostile environments and extended life applications where ultimate reliability is required. Halliburton based the NeoStar CS TRSV on the industry proven SPTM platform and optimized it to be a robust solution for carbon capture, utilization, and storage (CCUS) applications.

The NeoStar CS TRSV builds upon all the key features of the legacy SP safety valve by being equipped to handle ultralow temperature operation and survival scenarios required for CCUS applications. The "CS" designation was earned through qualification to CCUS industry test protocols where operability and survivability were proven at temperatures down to -35°C and -78.5°C. Having been validated in the vertical position ensures optimal performance in CCUS applications.

The NeoStar CS TRSV minimizes potential leak paths within the valve attributed to its single rod-piston design. The piston achieves a metal-to-metal (MTM) seal at its uppermost and lowermost positions to seal well pressure from the control system.

The low-temperature rod-piston design in the Halliburton NeoStar CS TRSV has been qualified as gas tight throughout all operating and survival conditions, thus providing higher reliability across CCUS temperature ranges.



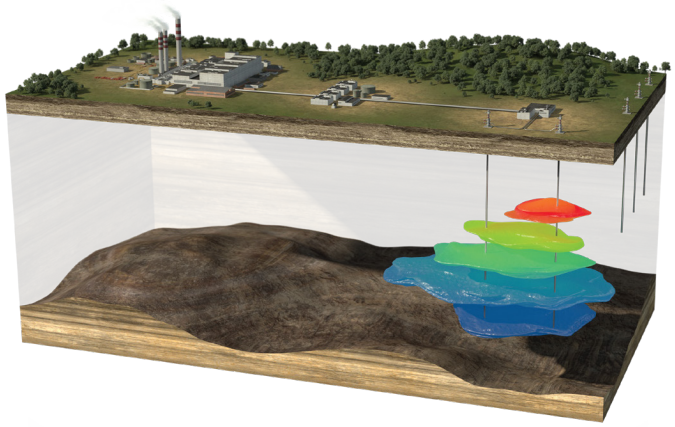
NeoStar® CS TRSV

Operational reliability and survivability for CCUS applications

A safety valve that can dynamically operate effectively at extreme temperatures under transient conditions and seal during a survival scenario in the most extreme temperatures is vital to well integrity.

Halliburton offers a diverse range of API qualified non-elastomeric safety valve designs in the sizes demanded by the CCUS industry, which helps provide full MTM containment in both open and closed positions. For permanent CCUS monitoring operations, slim OD solutions are available that allow the passage of gauge, fiber-optic, and hydraulic lines. These designs can be customized to suit shallow or deep-set applications.

The Halliburton in-house Material Science Center of Excellence located in Singapore is heavily invested in testing metallic and non-metallic materials in simulated CCUS environments to gain the appropriate knowledge to help select suitable materials for both environmental compatibility and cost effectiveness. These facilities are equipped to perform low-temperature testing on full-scale completion technology at temperatures down to -80°C as part of the ongoing CCUS safety valve operating life test program for industry demanded safety valve sizes.



Halliburton offers many solutions for low-carbon applications. Contact your Halliburton representative

NeoStar® CS TRSV specifications

TUBING SIZE (IN.)	PRESSURE RATING (PSI/BAR)	TEMPERATURE RATING	MAX. OD (IN.)
3.5	10,000 (689)	Survival: -78.5C (-109F) Operating: -35C to +177C (-31F to +350F)	5.86
4.5	10,000 (689)	Survival: -78.5C (-109F) Operating: -35C to +177C (-31F to +350F)	7.35
5.5	10,000 (689)	Survival: -78.5C (-109F) Operating: -35C to +177C (-31F to +350F)	7.69
7.0	7,500 (517)	Survival: -78.5C (-109F) Operating: -35C to +177C (-31F to +350F)	8.90

For more information, contact your local Halliburton representative or visit us on the web at www.halliburton.com

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