

VersaFlex® Top-Down Squeeze Cementing Valve

ENHANCED LINER CEMENTING CAPABILITY

OVERVIEW

In deepwater markets, well complexity can bring challenges when it comes to cementing liner systems. In particular, depleted reservoirs and zones with weak formations prone to fluid loss can prevent cement from lifting, which can result in poor cement placement. In the Gulf of Mexico, the Bureau of Safety and Environmental Enforcement (BSEE) regulations require 500 ft (152 m) of cement above the highest hydrocarbon zone. This helps ensure enough cement is placed to cover and isolate all hydrocarbon-bearing zones and isolate abnormal pressure intervals in the well. Until now, conventional liner hanger systems were the only liner hanger equipment with the capability to perform top-down cementing, in a single trip. By design, Halliburton VersaFlex® expandable liner hangers help improve equivalent circulating densities (ECDs), thereby enhancing the primary cementing. Introduction of the top-down squeeze cementing valve provides the capability to meet these regulations when primary cementing is not adequate.

TOP-DOWN SQUEEZE VALVE OPERATION

The VersaFlex top-down squeeze cementing valve is placed in the landing string above the hanger to allow a cement squeeze job be performed from the top down. The ported sub stays in the closed position throughout the primary cement job.

After the cement job, operators have the option to activate the valve or continue with expanding and setting the hanger. The valve is compatible with all VersaFlex expandable liner hanger systems and does not limit the operation of the running tool.

TESTING

Numerous tests were conducted at temperatures ranging from ambient to 275°F (135°C). The valve was tested to 10,000 psi before shifting and after shifting on each test. Additional testing proved its capability of handling a wide range of wiper darts before being deployed multiple times in scenarios where the valve was opened, squeezed through, and closed proving out the overall system successfully.

FEATURES

- » Minimal components
- » Unique expandable ball seat
- » Triple function valve
- » Premium seals
- » High-quality materials

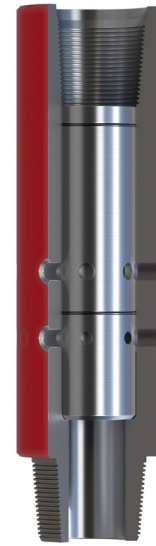
BENEFITS

- » Provides top-down squeeze capability
- » Positive pressure indicators of valve operation
- » Compatible with a wide range of liner cementing accessories
- » Porting provides large flow area
- » Pressure rated up to 10,000 psi @ 275°F (135°C)
- » Enhanced liner cementing capabilities



VersaFlex® 6-5/8" Top-Down Squeeze Cementing Valve Specifications

Connection	6 5/8-in. Box x Pin
Maximum OD	8.5-in.
Minimum ID	2.56-in.
Length	2.50 ft
Tensile	2,102,260 lbf
Torque Rating	58,310 ft-lb MU 108,000 ft-lb yield
Working Pressure	10,000 psi at 275°F (135°C)
Temperature Rating	275°F (135°C)
Total Flow Area	4.7 sq-in.
Burst Pressure	26,656 psi
Collapse Pressure	24,468 psi
Material Yield	125,000 psi



VersaFlex® 4-1/2" Top-Down Squeeze Cementing Valve Specifications

Connection	API- NC50
Maximum OD	6.64-in.
Minimum ID	2.31-in.
Length	4.12 -ft
Tensile	871,367 lbf
Torque Rating	22,633 ft-lb MU
Working Pressure	10,000 psi at 275°F (135°C)
Temperature Rating	275°F (135°C)
Total Flow Area	4.7 sq-in.
Burst Pressure	11,376 psi
Collapse Pressure	32,591 psi
Material Yield	125,000 psi



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