

# VersaFlex® Low ECD Expandable Liner Hanger System

## IMPROVED BYPASS AREA FOR REDUCED ECDS IN DEEPWATER AND MATURE ASSETS, WITH PRESSURE- SENSITIVE FORMATIONS

### OVERVIEW

Ideal for deepwater and mature assets, the Halliburton VersaFlex® Low Equivalent Circulating Density (ECD) expandable liner hanger (ELH) system was developed to handle low-pressure formations and fracture gradient sensitive wells. This system reduces pressure drop — verified by independent field tests — across the liner top during circulation and cementing for easier ECD management. Reduced pressure is achievable within a wide range of mud weights and is accomplished by a highly reduced outer diameter (OD) not available on industry-standard liner hanger equipment. The resulting increase in bypass area allows faster trip-in speeds. This flow-rate enhancement helps improve the cementing process as well, especially when integrating its reciprocation and rotation capability, increasing cement integrity.

The VersaFlex Low ECD ELH system carries a high-torque rating, which allows aggressive reaming and drill-in with the liner when confronting adverse well conditions, such as sloughing formations, swelling clays, and cave-ins. In addition, the VersaFlex Low ECD ELH system has an improved operating envelope without inner diameter (ID) restrictions.

The ECD running tool works in tandem with the reduced-OD VersaFlex ELH low ECD body. “Set and forget” reliability and unmatched sealing capability makes the VersaFlex ELH system ideal for deepwater and mature assets. The VersaFlex ELH incorporates multiple elastomers to achieve a hydraulically energized, gas-tight seal, testable upon setting with bi-directional anchoring.

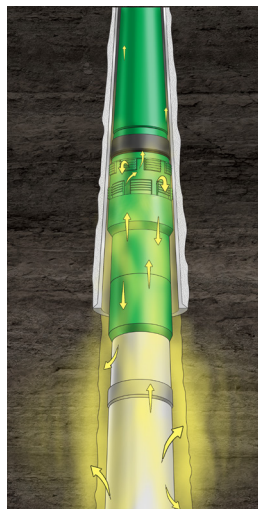
### FEATURES

- » Larger bypass area
- » Operating envelope comparable to industry-standard liner hangers
- » No restrictions at the liner top
- » Utilizes same casing equipment
- » Reduced OD
- » Multiple elastomers

### BENEFITS

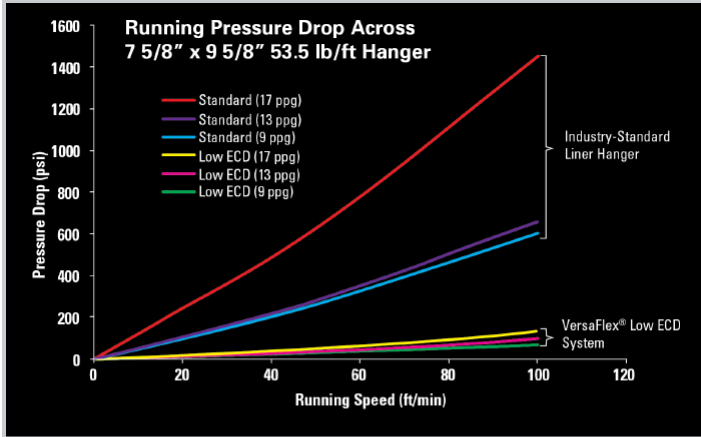
- » Reduced pressure drop across liner top for tripping-in or circulating (verified by independent field tests)
- » No ID restriction
- » Gas-tight seal on setting
- » Faster trip-in-hole speeds

*Left - Conventional liner hanger with nominal OD causing a restriction in flow path during well circulation and cement placement, which can damage fragile formations.*

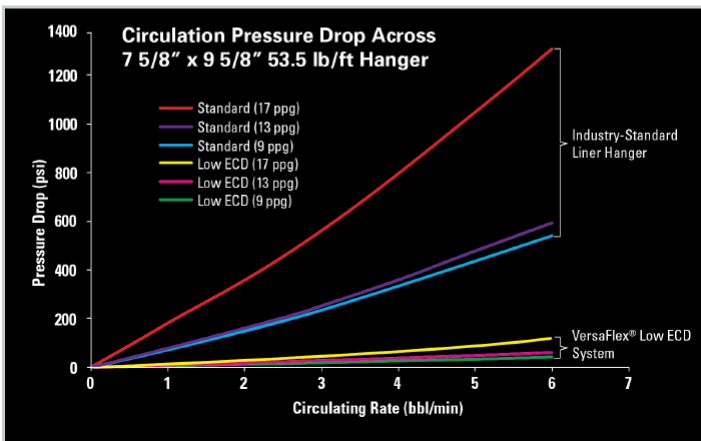


*Right - VersaFlex® Low ECD ELH system offers approximately twice the annular flow area, thus allowing increased flow rates.*





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Modeled and confirmed through testing, trip-in-hole speeds and circulation rates are improved up to 90% over industry-standard liner hanger systems.

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