

## XCELIS high-performance liner hanger system

Predictable, repeatable completion well construction in the most challenging conditions



Extensive debris testing



Up to 30% more compact



Up to 10% larger bypass area



Proven running tools

### Applications

- Completion well construction using cemented or uncemented liner casing
- Unconventional horizontal shale oil and gas wells
- Extended-reach wells
- Ream down

### How XCELIS system helps you optimally select, configure, deliver, and produce your wells

XCELIS\* high-performance liner hanger systems have been holistically designed to reduce the constraints of your liner casing well construction operations. The system uses a digital twin—combining analytical and numerical analysis for full understanding of the system’s mechanics—followed by rigorous and extensive testing in compliance with and exceeding the requirements for its **API Specification 19LH**. The XCELIS liner hanger system’s digital twin parametric modelling enables us, together with you for your most challenging wells, to capture design intent using features and constraints, and automate repetitive changes to produce a set of optimal design solutions for you.

### How XCELIS system improves production liner and intermediate liner casing run-in-hole operations

When running the liner string, whether it is a production liner or an intermediate liner casing string, the compact length and large bypass area **reduces the surge-pressure risk** of lost circulation, enabling faster descent speeds and **reducing rig time**. The patented interlocking pocket slip, cone, and retention ring design prevents presetting due to friction and avoids loosening or loss of slips while running in the hole.

The high operational torque capacity enables rotation to overcome ledges and hole collapse or reduce friction of longer liners to reach target depth. The liner hanger system can be floated or, to limit buoyancy, can be used with modified floatation equipment to use the mud-over-air method.

### How XCELIS system improves liner hanger setting operations

During displacement and hole cleaning, the large bypass area and shorter length **reduces equivalent circulating density (ECD)**. The slip and cone interface has the same effective bypass area in both the unset and set conditions, enabling improved hole cleaning and higher tolerance to debris accumulation.

When setting in the previous casing string, the slip design’s aggressive bite improves hanging capacity with deep host casing engagement to avoid slippage. The rail-free slips uniformly distribute the axial load so as not to jeopardize the host casing’s integrity.



*XCELIS high-performance liner hanger system available in unibody construction.*

## How XCELIS system enhances primary cement placement and long-term zonal isolation

The ECD during cementing operations is reduced due to the compact length and larger bypass area, which both act to reduce pressure drop across the liner hanger system, **reducing the risk of poor primary cement placement**. Additionally, XCELIS liner hanger system can be configured with an optional bearing to rotate the liner for optimal cement distribution in the annular space, thereby facilitating long-term zonal isolation and improving well productivity.

After the liner hanger has been set and cemented, the liner packer is set by placing the rotating tamping dog assembly on the tieback receptacle and slacking off the drillstring. Excess cement above the liner top packer can be circulated out after the packer is set.

## How XCELIS system improves well integrity

During run-in-hole, displacement, and cementing operations, liner top packer sealing elements must endure the frictional effects of high-rate fluid circulation and the washing effect of debris carried with the fluid, which can negatively impact its performance. The sealing element for the liner packer is a proprietary design and compound formulation, which has been **rigorously flow tested with debris** to ensure resilient high-performance setting and sealing, even in high-solid-content mud. The elements are self-energizing, meaning that once the packer is set, the sealing performance is sustained despite high-pressure, high-temperature thermal and pressure cycling through the life of a well.

The liner hanger system is available for mechanical- or hydraulic-set systems that are compatible with our field-proven hydraulic and mechanical setting tools. It is run with the [hydraulic collet running tool \(CRT\)](#) or the [mechanical right-hand release tool \(RRT\)](#).

- For the mechanical-set liner hanger, the slips are set by manipulating the string to engage the slips against the cones. Because of the manipulation of the string to set the hanger, it is recommended to use mechanical hangers in nondeviated wells.
- For the hydraulic-set liner hanger, the slips are set by applying pressure to the string that will actuate the hydraulic piston and will drive the slips against the cone.

In long liners set in vertical sections, this enables the liner hanger system to withstand higher hydraulic fracturing pressures when used with uncemented liners. The liner hanger is available in 125,000-psi [862 MPa] yield material. Other materials are available upon request.

## What else should I know about the XCELIS system?

- Available with hold-down slips to prevent the liner from floating after cementing, during fracturing operations, and for light liners
- Available in unibody construction integrated with the liner hanger or as a modular stand-alone packer for increased flexibility
- Available sizes, pressure, and temperature ratings upon request
- API Spec 19LH qualification



*XCELIS high-performance liner hanger system presented as a modular stand-alone hanger and packer.*

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