

LH Max

Metal-to-metal, high-pressure expandable liner hanger system



Rated to 10,000 psi [69 MPa]



Rated to 149 degC [300 degF]

APPLICATIONS

- Land and offshore completions
- Gas and oil wells
- Long-liner deployment
- Vertical and horizontal wellbores
- HPHT environments
- Drill-in applications

BENEFITS

- Improves cement integrity and enhances well stability, enabling long, heavy liners to be rotated and reciprocated during cementing
- Ensures liner top integrity with metal-to-metal bonded elastomeric seal
- Eliminates presetting because there are no external components
- Reduces formation surging and decreases trip time with large fluid bypass

FEATURES

- Integral tieback receptacle available in 10- to 20-ft lengths
- Nonexpanding body yields high burst, collapse, and tensile strengths
- High-torque capability to enable rotation in challenging wellbore configurations
- Integral retrievable cementing bushing profile
- Machine-hardened wickers on the expansion sleeve support heavy liner loads
- No external-facing parts

As part of the COLOSSUS M2M* metal-to-metal expandable liner hanger system portfolio, the LH Max* metal-to-metal, high-pressure expandable hanger system is a premium system designed for deployment in all types of wells. The hybrid design has all the features and benefits of an expandable liner hanger as well as the strength and quality materials of a conventional liner hanger.

The nonexpanding hanger body (mandrel) enables the user to select from a vast array of material options, including high-strength alloy, high-chrome, and stainless steel. In addition, the static mandrel offers the high burst, collapse, and tensile capacities typically found only in conventional hanger systems.

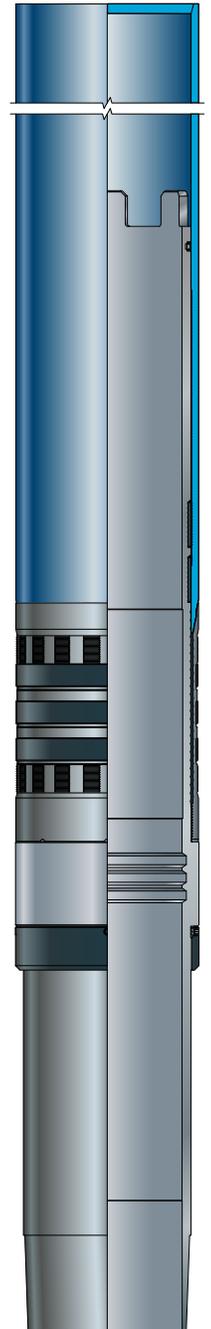
The unique design of the LH Max system uses the liner weight to aid in the final expansion of the hanger. The interlock between the integral polished bore receptacle (swage) transfers the liner load to the expansion sleeve after initial contact with the host casing.

Bonded elastomeric seals located on the outside of the hanger's expansion sleeve provide a fluid-tight seal when set in the host casing. Redundant metal-to-metal seals on the sleeves and mandrel ensure liner top integrity after expansion.

When used with the running tool and premium high-torque connections, the LH Max system is an ideal drill-in liner system.

LH Max System Specifications

Liner × Casing Size, in [mm]	Pressure, psi [MPa]	Temperature, degC [degF]
3.5 × 7.0 [88.9 × 177.8]	10,000 [69]	149 [300]
4.5 × 7.0 [114.3 × 177.8]	10,000 [69]	149 [300]
5.0 × 7.0 [127 × 177.8]	10,000 [69]	149 [300]
5.0 × 7.625 [127 × 193.6]	10,000 [69]	149 [300]
5.5 × 7.625 [139.7 × 193.6]	10,000 [69]	149 [300]
7.0 × 9.625 [177.8 × 244.5]	10,000 [69]	149 [300]
7.625 × 9.625 [193.6 × 244.5]	10,000 [69]	149 [300]



LH Max system.

Hydraulic Setting Tool and Hydraulic Running Tool

APPLICATIONS

- Extreme wellbore conditions and long laterals
- Liners requiring reaming or drilldown capabilities
- Rotation and reciprocation ability during cementing operations
- Long- and heavy-liner deployment
- Long lateral installations

BENEFITS

- Maintains equal pressure across cylinders using balanced pistons with debris barriers
- Prevents premature hanger expansion or fouling due to lost circulation material
- Improves cement integrity by rotating or reciprocating the liner during cementing operations
- Permits higher circulating rates
- Minimizes completion time through ability to rotate liner to achieve target depth
- Reduces risk of pulling liner out of the well with secondary release feature

FEATURES

- Modular design allows for the addition or subtraction of cylinders based on desired setting pressure
- Setting force is provided by multiple hydraulic pistons during the expansion process
- Torque bushing prevents connection backoff and transfers drilling or reaming torque to the liner
- Secondary mechanical release ensures liner release
- Adjustable stainless steel wire to configure pressure rating setup of the secondary release
- Designed to carry heavy liner loads
- Robust clutch design transfers high torque to liner

Hydraulic setting tool

The hydraulic setting tool for the LH Max system uses differential hydraulic pressure to generate the required expansion forces needed to set the LH Max system's expandable liner hanger. The modular design enables the addition or subtraction of cylinders to customize each hookup to the user's requirements or wellbore conditions.

Torque bushings eliminate the applied rotational or drilling torque from all threaded connections while preventing the possibility of backing them off.

Debris barriers in the setting tool and in the balance pistons (found in all exposed cylinders) prevent debris and cuttings from filling up cylinders, prevent strokes during setting, and maintain balanced pressure across the cylinders.

Hydraulic Setting Tool Specifications

Sizes, in [mm]

3.5 × 7.0 [88.9 × 177.8]

4.5 × 7.0 [114.3 × 177.8]

5.0 × 7.0 [127.0 × 177.8]

5.0 × 7.625 [127.0 × 193.6]

5.5 × 7.625 [139.7 × 193.6]

7.0 × 9.625 [177.8 × 244.5]

7.625 × 9.625 [193.6 × 244.5]

Hydraulic running tool

The hydraulic running tool for the LH Max system is a high-torque hydraulic release running tool that incorporates a secondary mechanical release.

Hydraulic pressure achieved during the setting of the LH Max hanger system trips the hydraulic lock on the running tool and enables it to be released after an applied compressive load locks the collet in the upward position.

Torque bushings eliminate the applied rotational or drilling torque from all threaded connections while preventing the possibility of backing them off. The clutch and the torque bushing permit high-torque and drilldown capabilities throughout the expandable liner hanger system. Rotation and reciprocation of the system is possible during cementing operations.

Running Tool Specifications

Sizes, in [mm]

3.5 × 7.0 [88.9 × 177.8]

4.5 × 7.0 [114.3 × 177.8]

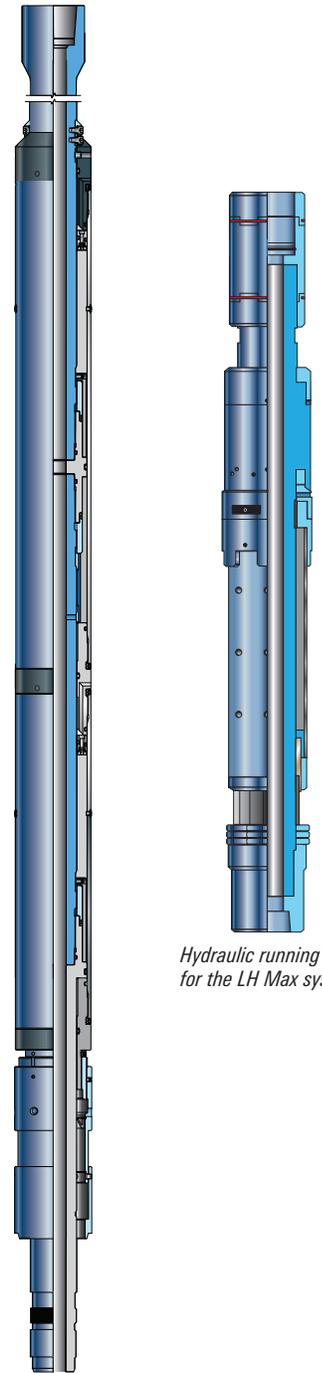
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Hydraulic running tool for the LH Max system.

Hydraulic setting tool for the LH Max system.

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