



TruForm® Expandable Liner Hanger

The Weatherford TruForm expandable liner hanger is the centerpiece of a liner-installation system that uses the most up-to-date, proprietary, expandable technology. In addition to the TruForm hanger, all liner-system components, along with conveyance and setting tools, are specifically engineered into a fit-for-purpose, total-solution system.

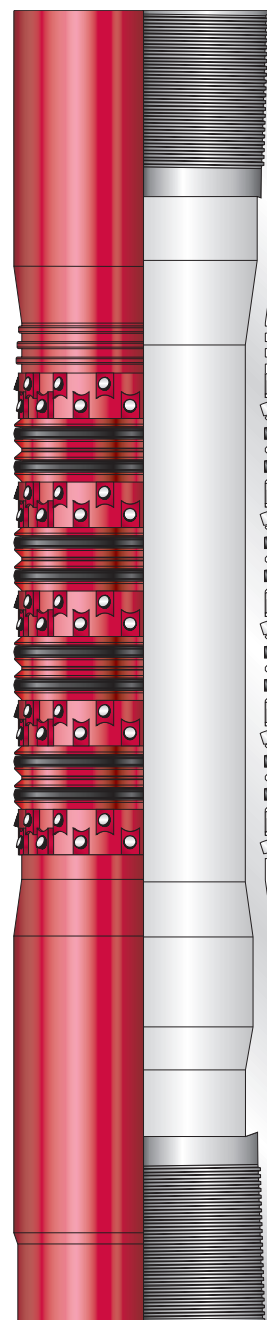
The one-piece, thick-walled, expandable TruForm body integrates independent anchor and seal sections comprised of tungsten-carbide inserts and elastomeric elements, respectively. The inserts provide superb anchoring capabilities and the redundant packer elements with anti-extrusion barriers provide maximum differential pressure capability after expansion. Each element is securely bonded to the TruForm body, which results in superior swabbing resistance during running-in-the-hole and circulation.

The TruForm body is expanded with a one-piece, self-adjusting, compliant expansion cone activated by hydraulic pressure. The cone transitions down the body in one continuous motion, anchoring the inserts and expanding the elements.

The compliant cone design requires a minimum surface pressure and eliminates pressure spikes during expansion, which can be caused by parent-casing ID tolerances and irregularities. The permanent deformation of the expandable section ensures that the packing elements and inserts remain energized following the pressure cycle, temperature cycle, or pressure and temperature cycles.

Applications

- Liner drill-down or ream-down situations
- Liner installations that require rotation and reciprocation for more effective wellbore cleanup, as well as during primary cementing operations
- Rig conditions when system working pressures are in excess of 3,500 psi (24.1 MPa) are problematic
- Production liners that require high levels of pressure integrity
- Liners run in deviated wellbores





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Features, Advantages, and Benefits

- The solid, one-piece body eliminates potential leak paths, facilitating high-torque capabilities and providing the same high-pressure integrity from above and below the elements.
- The unique anchor and seal sections have no moving parts (cylinders, slips, cones, elements, etc.) that can be prematurely set or damaged while running in the hole. This feature lowers maintenance costs and extends the life of the hanger.
- Packer elements flanked with solid anti-extrusion barriers eliminate extrusion gaps during expansion, which creates a positive, gas-tight seal between the expanded liner hanger and host casing.
- Expanding a thicker wall provides a superior performance envelope by combining high burst-and-collapse ratings, which enables the same high differential pressure rating above and below the elements after expansion.
- Precision placement of tungsten-carbide inserts provides reliable anchoring in standard casing grades for exceptional hanging capabilities.
- The compliant expansion cone ensures a full 360° radial-OD contact of the inserts and packing elements with parent casing, which provides uniform expansion with greater reliability at a lower pressure and eliminates pressure spikes.
- Top-down expansion of the liner hanger ensures reliable, setting-tool retrieval.
- Multiple, redundant, bonded elastomers are extremely resistant to swabbing effects, which enables high circulation rates and aids the removal of debris during well conditioning.
- The capability to rotate and reciprocate during cementing operations enhances the cement job and zonal isolation.
- The TruForm hanger is run below a polished-bore receptacle that is equipped for second-run packer or tieback-packer applications, which provides operational flexibility.

Specifications

Liner Size (in., mm)	Liner Weight (lb/ft, kg/m)	Casing Size (in., mm)	Casing Weight (lb/ft, kg/m)	Standard Testing Validation	Maximum Pressure (psi, MPa)	Maximum Temperature (°F, °C)
7 178	23.0 to 41.0 34.23 to 61.01	9-5/8 244	47.0 to 53.5 72.92 to 79.61	ISO 14310 V0	12,000 82.74	300 149
7 178*	23.0 to 41.0 34.23 to 61.01	9-5/8 244	47.0 to 53.5 72.92 to 79.61		9,000 62.05	
9-5/8 244	36.0 to 92.7 53.57 to 137.95	11-3/4 298	60.0 to 66.7 89.29 to 90.33		10,000 68.95	
11-3/4 298	54.0 to 96.0 80.36 to 142.86	13-3/8 340	68.0 101.20		6,000 41.37	
11-3/4 298	54.0 to 96.0 80.36 to 142.86	13-3/8 340	72.0 107.15		7,000 48.26	

*Size is available in CRA material with reduced maximum pressure as stated above.