



HyperLine™ Mud-Lubricated Motor with Motor Lock Assembly

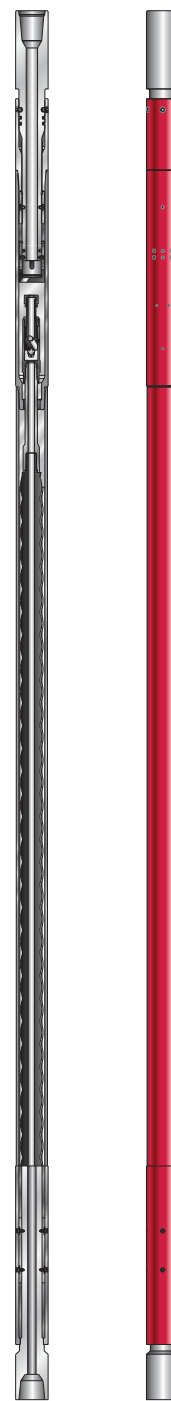
The *HyperLine* mud-lubricated motor with motor lock assembly, with even rubber thickness (ERT) technology and a positive displacement mud (PDM) motor, redirects fluid flow in the well to prevent rotation of the bit box and other components below the motor during the orientation event or actuation of any additional hydraulic components. The *HyperLine* motor meets the re-entry profile standard—simple, effective, and high-performance—and targets high-cost, high-risk, high-reward installations related to nonproductive time. The product allows a true one-trip exit to be executed with a mud motor in the bottom hole assembly (BHA). Without this integrated feature, additional trips to the installation are required before the job can even start. The larger the daily-spread rate, the higher the reward is in the reduction of installed cost.

Applications

- Thru-tubing rotary drilling enables an operator to complete a casing-exit in one trip without rotating the workstring through a completion or wellbore safety device.
- Extended-reach drilling permits the milling operation to be completed hydraulically at extended depths, mitigating casing-wall loss or increased radial wear and tear on expensive workstring tubulars.
- Tortuous wells allow milling operations to excel compared to high-rotary torques, which impede critical parameters required for operational performance.

Features, Advantages and Benefits

- Motor lockout circulates to log wellbore or orientate for casing-exit departure, reducing the number of costly trips.
- ERT power sections double the efficiency of standard or conventional power sections, completing exits in increased wall diameters and extended rathole drilling, where wellbore departure is critical for rig site survey or expandable completion.
- A rugged, robust, simple unlocking sequence provides clean, responsive, visible surface reaction during the operational sequence. The supervisor has complete operational control in challenging wellbore architecture, eliminating the guesswork so often associated with downhole drilling.





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Operational Sequence

The following list is the operational sequence using the *HyperLine* 4 3/4-in. 4554 XME-ML ERT™ Motor with Lockout Assembly.

1. The 4 3/4-in. ERT motor with the locking feature is installed in the milling BHA directly above the specified string member.
2. The motor assembly is in the “locked-out” position, directing flow through the rotor and preventing rotation of the bit box during circulation of the drill string.
3. The complete whipstock, milling assembly, and milling-while-drilling (MWD) BHA is tripped in the wellbore to setting depth.
4. Circulation of the MWD provides the required direction for orientation of the whipstock face.
5. The circulation is increased per the predetermined AccuSet™ calculator data output to actuate the anchor-setting mechanism.
6. The drillstring is lowered to shear the lead-mill attachment shear screw (pump is disengaged before shearing) and mechanically pack off the anchor being used.
7. The drillstring is picked up to validate that the milling BHA has separated from the anchored whipstock assembly.
8. The drillstring is lowered again, this time applying the recommended load to shear the spline-mandrel shear pins, enabling the plug to seat into the rotor inner diameter (ID). The fluid now travels on the outside of the rotor after the pumps are engaged.
9. The drillstring is picked up above the anchored whipstock assembly and the pumps are slowly engaged. As the pressure differential increases, the shear pins in the bearing section shear off, enabling the rotation of the bit box.
10. The required flow rate can now be applied to the ERT-mud motor, permitting milling operations to begin.

Specifications

Item	Description
Length to stabilizer	33 in. 0.84 m
Length to bend	52 in. 1.32 m
Overall length	300 in. 7.62 m
Maximum OD	5.5 in. 140 mm
Recommended minimum hole size	5-7/8 in. 149 mm
Recommended maximum hole size	7 7/8-in. 200 mm
Top box connection	3 1/2 If 3 1/2 Reg
Bottom box connection	3 1/2 Reg
Weight	1,050 Lb. 475 kg