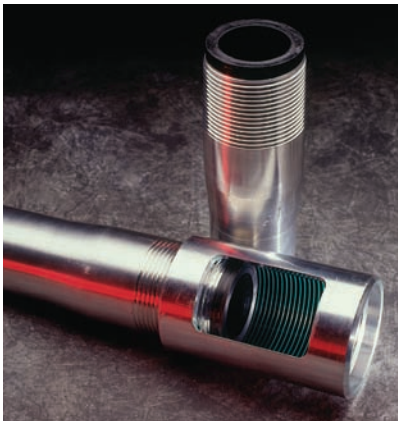
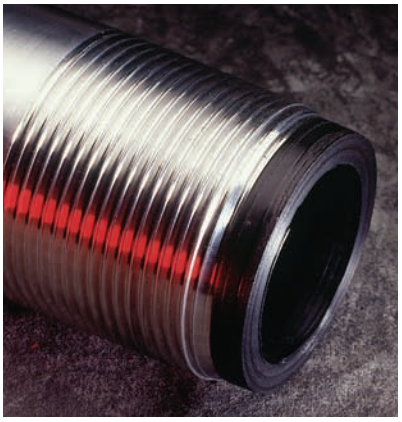
FALCON MODIFIED POLYCORE™

www.westernfalcon.com
www.polycore.ca

The Original
"Poly" Liner



Coated couplings to protect J-area against corrosion.



Liner face provides pin thread protection.

SEAMLESS HIGH DENSITY POLYETHYLENE (HDPE) LINER

Falcon Modified Polycore™ is a High Density Polyethylene (HDPE) liner as specified by the Plastic Pipe Institute's Specification PE 3608. This patented product is highly abrasion resistant which accounts for its success in the mitigation of tubing rod wear, wire line, mechanical, and handling damage. HDPE is chemically inert to corrosive materials enhancing its use as a corrosion barrier. The mechanically bonded seamless tube is tolerant to minor surface imperfections and eliminates concerns with holidays or voids as in adhesive or thermally bonded liners and coatings.

Primary Applications

- Beam Pumped Wells
- PC Pumped Wells
- Submersible Pumped Wells
- Plunger Lift Wells
- Dewatering
- Coal Bed Methane
- Water Injection
- Disposal
- Flow Lines
- Solution Mining

Benefits

- Mitigates rod on tubing wear
- Corrosion control
- Decrease pressure drop in high velocity flow
- Reduce well servicing frequency and cost
- Reduce tubing and rod replacement
- Reduce corrosion inhibitor requirements
- Reduce friction and peak polish rod load
- Eliminate rod guides
- Optimize your current inventory by utilizing lower quality tubing
- Apply over used coatings
- No stabbing guides or special coupling inserts required
- No field service technician required
- Lined tubing in stock

Specifications

- Maximum operating temperature is 160° F (71° C) in oil production and 180° F (82° C) in aqueous service
- Coated couplings to protect J-area against corrosion
- Minimum API torque recommended for tubing connection make-up
- No special position make-up required
- Not recommended for high pressure gas wells
- Not recommended for wells with elevated CO_2 concentrations
- Polycore is black in color

Tubing Size	Drift	Liner Weight
2 3/8" / 60.3 mm	1.516" / 38.51 mm	.43 #/ft / .64 kg/m
2 7/8" / 73.0 mm	1.901" / 48.29 mm	.63 #/ft / .94 kg/m
3 1/2" / 88.9 mm	2.347" / 59.61 mm	91 #/ft / 1.35 kg/m

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Considerations Before Using Plastic Liners or Coatings

Western Falcon liners have been successfully deployed in tens of thousands of wells; yet, they are not appropriate for all environments and applications. Western Falcon regularly refuses to deploy its products into environments that can damage, attack or deform the liner. Please contact your Western Falcon or Polycore Tubular Liner representative to discuss your specific application in more detail if you have any questions or concerns about environmental or chemical compatibility of the thermoplastic materials in your well. If mishandled or misapplied, all liners and coatings can be compromised or mechanically damaged. When properly applied Western Falcon liners have shown to be resistant to typical rod wear and/or rod slaps common in most rod pumped applications.

Environments in the oil and gas industry are very complex and dynamic. It is not uncommon to experience wide variations in pressure, temperature, phase changes, and multiphase flow regimes in the same well. Because of the complexity of oilfield environments, the codependence of well conditions and their effect on the thermoplastics used as liner materials, it is desirable to evaluate each operational environment individually and holistically before deploying lined tubulars into a well. When possible, please provide your technical representative with a complete and accurate description of your expected well environment and operational practices before using Western Falcon lined tubing. A change in one parameter (pressure or acid gas concentration for example) might decrease the recommended allowable maximum rating of another parameter (temperature for example) or even prohibit the use of a product in a well. Please consider any unusual well operational treatments or services that might damage or compromise the thermoplastic liner and the following points:

1. All thermoplastics are permeable to gases, particularly small molecules like acid gases. The permeability of the liner is dependent on other factors in the environment. This limits the application of liners in wells such as high pressure gas wells and environments that contain too much CO2 and/or H2S.

2. The physical and chemical properties of thermoplastics change as a function of the temperature and/or pressure. Please discuss your specific application in detail with a technical representative from Western Falcon if you are using the liner in an extremely high (near the recommended operational limits) or low temperature/pressure environment.

3. Like other materials used in the oil patch, liners are susceptible to mechanical damage if mishandled. Please refer to the Western Falcon installation and operational procedures webpage for more information on avoiding premature damage to liner materials.

4. Special procedures designed to minimize damage to thermoplastic liners have been developed for common well operations such as fishing of parted rods, downhole cutting of lined tubing, remediation of surface deposits, special completion designs for different types of artificial lift, etc… Please discuss detailed options with your Western Falcon technical representative before performing such downhole operations.

5. Western Falcon offers several different liner products. Each product has a unique composition with a unique set of limitations and advantages. By design, Western Falcon liners are different colors for easy field identification. Please verify with your Western Falcon representative that the color/designation of the liner you are installing is correct for your specific application.

For the most up to date information, recommended running procedures, recommended minimum API torque values, dimensions, and care and handling instructions please visit
www.westernfalcon.com **or** *www.polycore.ca*