



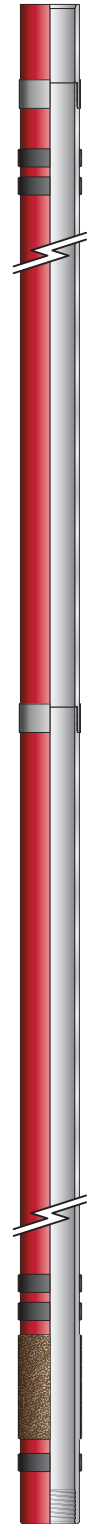
MetalSkin® Cased-Hole Liner System

Weatherford's *MetalSkin* cased-hole liner (MCL) is a solid-tubular expandable system that addresses the most common and challenging casing-remediation applications. The *MetalSkin* system is a robust liner (or clad) that seals and isolates damaged or perforated casing, providing permanent isolation with minimal ID loss. The system bridges the gap in casing repair between cement squeezing and scab liners, significantly reducing operational costs.

The MCL system is customized to the operator's isolation requirements and typically consists of an integral anchor joint, multiple standard joints that are dependent on the length required, an isolation joint, and a top joint. The integral anchor joint integrates anchor and seal sections composed of tungsten-carbide inserts and elastomeric elements, respectively. After expansion, the inserts provide superb anchoring capabilities to the parent casing inside diameter (ID), and the elastomer elements provide annular isolation after expansion. Each element is securely bonded to the body, resulting in superior swabbing resistance during running-in-the-hole and circulation.

The MCL is run on a drillpipe work string to the desired setting depth and then lowered several feet below the installation setting depth. Hydraulic pressure is applied to the work string to actuate the *MetalSkin* expansion setting tool. This movement drives the expansion cone upward, releases the moving components from the lower casing thread, and expands the lowest portion of the liner by affixing the liner's carbide and elastomer anchors to the parent casing ID.

After the integral anchor joint is anchored, expansion continues by bleeding off the hydraulic pressure and mechanically pulling the expansion cone upward. The liner will continue to be expanded throughout its full length where the work string and *MetalSkin* expansion system are pulled from the well. Alternatively, in cases where the work string tensile strength or rig capacity is limited, the liner expansion can continue by repeated actuation of the expansion tool. With the installation complete and no drillout required, well production or continued completions may resume immediately.





MetalSkin® Cased-Hole Liner System

Applications

- Isolating discrete well sections with mechanical failures such as parted casing, casing corrosion, casing splits, collar leaks, or subsidence-damaged casing
- Wellbores requiring a lateral or sidetrack window seal
- Well environments requiring production or injection optimization by shutting off water or depleted production zones, eliminating thief zones, increasing zonal isolation, and isolating redundant perforations

Features, Advantages and Benefits

- The *MetalSkin* cased-hole liner eliminates drillout after installation, reducing nonproductive time (NPT) and enabling immediate production.
- The large ID after installation provides a larger through-bore access to lower zones compared to alternative solutions, maximizing production or injection rates.
- Applied surface pressure expands and sets the anchor without the need for darts, plugs, and shoes, reducing NPT by eliminating drillout.
- The single-trip system can be installed quickly, minimizing NPT and maximizing recompletion options.
- Precision placement of the tungsten-carbide inserts provides reliable anchoring capabilities in standard casing grades, maintaining integrity of the system.
- The ID of the expandable liner and the connections are never exposed to expansion pressures, enhancing safety and reliability while reducing operational risk.
- Multiple, redundant, bonded elastomers are extremely resistant to swabbing effects, enabling high circulation rates and aiding the removal of debris during well conditioning.
- Anchor joint and seal sections have no moving parts (cylinders, slips, cones, elements, etc), preventing premature setting.
- Top-down recompletion and selective reperforation capabilities enable access to lower zones, enhancing production and reservoir management.
- Optimized running clearance, easy expansion system removal, and selective isolation capabilities provide operational flexibility, minimizing risks.
- The compliant expansion cone ensures a full 360° radial-OD contact of the inserts and packing elements with parent casing, providing uniform expansion.
- Multiple zones may be isolated in a single wellbore with repeated deployment of the MCL systems, providing added operational flexibility.

Specifications

Contact an authorized Weatherford representative for further information.