Stronghold® Defender® System
Permanent Caprock Integrity

Archer’s field proven Defender® barrier test system enables operators to perforate and test an annular barrier. The Defender® is part of a series of Stronghold® perforating, washing, cleaning and cementing systems to deliver faster, safer and more economical solutions for operators worldwide.

Benefits
– Field proven
– Significant time and cost savings
– Efficient one-trip system with TCP
– No section milling and swarf handling
– Qualification of an effective barrier
– No surge or swab effect

Applications
– Well abandonment
– Formation integrity testing
– Annular solids integrity testing
– Circulation out of old, environmentally unfriendly, annular fluids

Features
– Primary and back-up swab cup design
– Adjustable distance between swab cups
– Flow by-pass system
– Disconnect system
– Ball or dart drop

The Defender® system provides a safe, quick, economical and effective alternative to traditional plug and abandonment (P&A) techniques of casing recovery, milling and perforate, wash and cement.

Traditionally, several runs were required to test the annulus. Setting two plugs and perforating usually took up to 3 runs.

Archer’s Defender® system achieves this in just 1 trip by:
– Perforating the casing or liner.
– Verifying the integrity of the annulus.
– Placing barrier material in the casing and annulus.

The result is a permanent verified barrier that is achieved in a single trip - a simple, cost effective solution for annular remediation, bringing absolute protection and safety.

Together with Tubing Conveyed Perforating (TCP) products and new charge development, Archer’s Stronghold® systems support the safe and efficient execution of operations.

In designing the Stronghold® Defender® system, our engineers focused on 3 key areas - Efficiency, Flexibility and Reliability to produce a service that is economical, efficient and effective.

Specifications

<table>
<thead>
<tr>
<th>Casing Size, in</th>
<th>6 5/8 - 8 5/8</th>
<th>9 5/8 - 16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Min ID, in</td>
<td>2.2</td>
<td>2.3</td>
</tr>
<tr>
<td>Pressure rating, psi [bar]</td>
<td>5000 [344]</td>
<td>5000 [344]</td>
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</tbody>
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Archer is a global oil services company with a heritage that stretches back over 40 years. With a strong focus on safety and delivering the highest quality products and services, Archer operates in 40 locations over 19 countries providing drilling services, well integrity & intervention, plug & abandonment and decommissioning to its upstream oil and gas clients. We are Archer.

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