Sustained Casing Pressure (SCP) is common in many wells globally (>30%) and present within multiple annuli. Since 2009, well integrity has cost operators over $75 billion. This has provided the impetus for the industry to focus on and rework international standards on well integrity management. Through the incorporation of the WAB® to the well construction phase, Welltec® are facilitating enhanced well integrity via standalone cased hole barriers, open hole isolation and cement assurance.
At Welltec, we design and test our WAB® range in accordance to ISO 14310, the industry standard which defines packer design validation grades. Our V0 WAB® range for cased hole SCP barrier has been tested to ISO1410 V0 leak criteria, the highest validation level within this industry standard, and provides a verifiable, life of well barrier against SCP.

Our V3 WAB® range for open hole isolation, has been validated to ISO1410 V3, the highest fluid validation level within this industry standard. The WAB® provides life of well V3 isolation assurance within the open hole section. Additionally, it can be set within cement or used in combination with 2nd Stage cement systems to support high pressure columns of cement, preventing SAP or production of unwanted gas or water.

The steel packer expandable sleeve is expanded between the base pipe and the casing or the borehole by applying pressure in the casing. It conforms to the actual wellbore or casing geometry and primary sealing is achieved through a patented series of elastomer seals. The WAB® seals are optimised along the length of the steel sleeve, backed up by a series of metal fins that provide metal to metal or metal to rock contact, and high strength anchoring capability. Once the WAB® is set, casing integrity is re-instated via internal hydraulic isolation mechanism.

The WAB® can be mounted and welded onto any base casing in a simple and cost-effective way. Both ends are therefore fixed and provide life of well protection to the expanded WAB Sleeve.

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### Features
- **Rugged, all welded, metal construction**
- **Casing integrity re-instated post setting**
- **Burst protection fitted as standard**
- **High expansion capability**
- **Constant, high pressure Δp over full expansion range**
- **No premature expansion**
- **NACE Compliant**

### Benefits
- Removes the need for cement
- Removes channels or leak paths at setting depth
- Rotatable during deployment enabling casing to TD in challenging environments
- Rotatable during primary cement operations enhancing cement placement
- Displaceable through milled windows
- Slim OD allows for high rate circulation during deployment
- Rapid set nature of WAB reduces time to next hole section
- High rate circulation capability
- Full bore – as per casing tubing

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### Applications
- ISO 14310 V0 cased hole SCP barrier
- ISO 14310 V3 standalone open hole SCP isolation
- Futureproof cap rock P&A
- Platform for 2nd stage cement
- Cross flow isolation
- Open hole fault isolation plug
- Liner/casing hanger

### General Information
- **Product Name**: Welltec Annular Barrier (WAB®)
- **Product Structure**: Single Piece, Machined Sleeve – Fully Welded to Base Pipe
- **ISO Standard**: Up to ISO 14310 V5 Leak Criteria
- **Seal Length**: Up to 2m*
- **Base Casing**: Compatibility with all Standard Casing Material / Weight / Threads
- **Standard Material**: Alloy 28 / Super Duplex SST
- **Non-Elastomer Seals**: PTFE

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### WCS PRODUCT SPECIFICATIONS

<table>
<thead>
<tr>
<th>Welltec® WAB®</th>
<th>812WAB</th>
<th>812WAB up**</th>
<th>912WAB</th>
<th>1214WAB Slim</th>
<th>1214WAB up***</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Expansion range</strong></td>
<td>8.50 &gt; 10.00&quot;</td>
<td>(215.9 &gt; 254mm)</td>
<td>8.40 &gt; 9.00&quot;</td>
<td>(213.36 &gt; 228.6 mm)</td>
<td>9.50 &gt; 10.50&quot;</td>
</tr>
<tr>
<td><strong>Minimum running OD</strong></td>
<td>8.180&quot; (207.6mm)</td>
<td>8.2&quot; (208.28 mm)</td>
<td>9.00&quot; (228.6 mm)</td>
<td>10.6&quot; (269.24 mm)</td>
<td>11.38&quot; (289.1 mm)</td>
</tr>
<tr>
<td><strong>ISO14310 Standard</strong></td>
<td>Up to V0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Maximum working pressure</strong></td>
<td>10,000 psi (689 bar)</td>
<td>10,000 psi (689 bar)</td>
<td>8,000 psi (552 bar)</td>
<td>8,000 psi (552 bar)</td>
<td>8,000 psi (552 bar)</td>
</tr>
<tr>
<td><strong>Constant element Δp across expansion range</strong></td>
<td>10,000 psi (689 bar)</td>
<td>10,000 psi (689 bar)</td>
<td>8,000 psi (552 bar)</td>
<td>8,000 psi (552 bar)</td>
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</tr>
<tr>
<td><strong>Minimum running OD</strong></td>
<td>12.20&quot; (311.1 mm)</td>
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<td>12.20&quot; (311.1 mm)</td>
</tr>
<tr>
<td><strong>Temperature range</strong></td>
<td>260 °C (500 °F)</td>
<td>260 °C (500 °F)</td>
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<td>260 °C (500 °F)</td>
</tr>
</tbody>
</table>

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<thead>
<tr>
<th>*Welltec® WAB®</th>
<th>1214WAB LC</th>
<th>1312WAB***</th>
<th>16WAB</th>
<th>1712WAB</th>
<th>2412WAB***</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Expansion range</strong></td>
<td>12.25 &gt; 13.00&quot; (311.1 &gt; 330mm)</td>
<td>12.40 &gt; 14.80&quot; (314.96 &gt; 375.92 mm)</td>
<td>16.00 &gt; 19.00&quot; (406.4 &gt; 482.6 mm)</td>
<td>17.50 &gt; 20.35&quot; (444.5 &gt; 520.7 mm)</td>
<td>22.30 &gt; 26.50&quot; (566.42 &gt; 673.1 mm)</td>
</tr>
<tr>
<td><strong>Minimum running OD</strong></td>
<td>11.75&quot; (298.45mm)</td>
<td>15.50&quot; (393.7 mm)</td>
<td>17.00&quot; (433.8 mm)</td>
<td>22.1&quot; (561.34 mm)</td>
<td></td>
</tr>
<tr>
<td><strong>ISO14310 Standard</strong></td>
<td>Up to V0</td>
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<tr>
<td><strong>Maximum working pressure</strong></td>
<td>5,000 psi (345 bar)</td>
<td>5,000 psi (345 bar)</td>
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<td>5,000 psi (345 bar)</td>
<td>5,000 psi (345 bar)</td>
</tr>
<tr>
<td><strong>Constant element Δp across expansion range</strong></td>
<td>5,000 psi (345 bar)</td>
<td>5,000 psi (345 bar)</td>
<td>5,000 psi (345 bar)</td>
<td>5,000 psi (345 bar)</td>
<td>5,000 psi (345 bar)</td>
</tr>
<tr>
<td><strong>Standard element lengths</strong></td>
<td>Up to 2.7ft (2.2m)</td>
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</tr>
<tr>
<td><strong>Temperature range</strong></td>
<td>260 °C (500 °F)</td>
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<td>260 °C (500 °F)</td>
</tr>
<tr>
<td><strong>Base-pipe OD (up to)</strong></td>
<td>10-1/8&quot;</td>
<td>10-1/8&quot;</td>
<td>13-3/8&quot;</td>
<td>14&quot;</td>
<td>18-5/8&quot;</td>
</tr>
</tbody>
</table>

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*Additional Sealing Length can be modelled on request.

**Non-Elastomer Seals**: PTFE

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**Product Name**: Welltec Annular Barrier (WAB®)

**General Information**

- **Product Structure**: Single Piece, Machined Sleeve – Fully Welded to Base Pipe
- **ISO Standard**: Up to ISO 14310 V5 Leak Criteria
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**Applications**
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- ISO 14310 V3 standalone open hole SCP isolation
- Futureproof cap rock P&A
- Platform for 2nd stage cement
- Cross flow isolation
- Open hole fault isolation plug
- Liner/casing hanger

**Features**
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- Casing integrity re-instated post setting
- Burst protection fitted as standard
- High expansion capability
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- No premature expansion
- NACE Compliant

**Benefits**
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- Rotatable during deployment enabling casing to TD in challenging environments
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- Displaceable through milled windows
- Slim OD allows for high rate circulation during deployment
- Rapid set nature of WAB reduces time to next hole section
- High rate circulation capability
- Full bore – as per casing tubing
The WAB’s metal construction provides a fast, high expansion, rugged seal against the open hole or casing irrespective of the fluid in the well. Furthermore, as shown in the chart below, there is no degradation of the maximum delta P capability versus expansion diameter.

The WAB® DELIVERS MAX DELTA P over a wide range of hole sizes

...while CONVENTIONAL annular barriers have a DECREASING MAX DELTA P as the hole size increases