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 applications 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 (Sustained Casing Pressure.)
The steel packer expandable sleeve is expanded between the base pipe and the casing 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.

Through its versatility in application, and robustness in design, the Welltec® Annular Barrier (WAB®) for Well Completion can be utilized to provide solution(s), to many requirements throughout the completion phase of a well. Firstly, the WAB® ISO14310 V0 leak rate capability, when set in a cased hole, enables the incorporation of the WAB® as a high-pressure production packer for both high pressure gas, and oil well applications.

Furthermore, the ability to rotate and reciprocate during installation and cementing operations, and then expand and seal, on demand, via a one-time application of surface pressure, in horizontal applications, allows the WAB to be incorporated as a liner hanger, significantly reducing risk and complexity, in these often-challenging applications. Couple this with the V0 leak rate capability, the WAB liner hanger offers significant benefits over conventional, dual stage set, liner hangers. Once the WAB is set, tubing / 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.

**Applications**
- ISO 14310 V0 liner hanger
- ISO 14310 V0 production packer (permanent)
- Cased hole weld isolation plug

**Features**
- Cartridge, all welded, metallic construction
- Tubing / liner integrity re-installed post setting
- Burst protection optional
- High expansion capability
- Constant, high pressure ∆p over full expansion range
- No premature expansion
- NACE compliant

**Benefits**
- Removes the need for cement
- Rotatable during deployment enabling liner to TD in challenging environments
- Rotatable during primary cement operations enhancing cement placement
- Deployable through milled windows
- Slim OD allows for high rate circulation during deployment
- Rapid set nature of WAB reduces time & complexity
- High rate circulation capability
- Full bore – as per casing / tubing

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### WELLTEC ANNULAR BARRIER® Annular Barrier (WAB®) for Well Completion

**DataSheet**

**WELLTEC ANNULAR BARRIER® Annular Barrier (WAB®)** for Well Completion

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

**Product Structure**
Single Piece, Machined Sleeve – Fully Welded to Base Pipe

**Seal Length**
Up to 2m

**Base Casing**
Compatibility with all Standard Casing Material / Weight / Threads

**Standard Material**
Alloy 28 / Super Duplex SST

**Standard Elastomers & Seals**
HNBR / Aflas / FFKM

**Non-Elastomer Seals**
PTFE

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### WCS PRODUCT SPECIFICATIONS

**Slim Bore Liner Hanger (LH) & Production Packers (PP)**

<table>
<thead>
<tr>
<th><em>Welltec® WAB®</em></th>
<th>334WAB</th>
<th>334WAB HP</th>
<th>6WAB</th>
<th>614WAB</th>
<th>812WAB</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Expansion Range in (mm)</strong></td>
<td>5.75 &gt; 8.00</td>
<td>5.75 &gt; 8.00</td>
<td>6.00 &gt; 7.00</td>
<td>6.25 &gt; 7.50</td>
<td>6.50 &gt; 7.50</td>
</tr>
<tr>
<td>Base Casing Range (up to)</td>
<td>215.9 &gt; 231.1</td>
<td>215.9 &gt; 231.1</td>
<td>215.9 &gt; 231.1</td>
<td>215.9 &gt; 231.1</td>
<td>215.9 &gt; 231.1</td>
</tr>
<tr>
<td><strong>Minimum Running OD in (mm)</strong></td>
<td>5.56</td>
<td>5.56</td>
<td>5.70</td>
<td>6.00</td>
<td>6.25</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 psi (bar)</strong></td>
<td>10,000 psi (689 bar)</td>
<td>10,000 psi (689 bar)</td>
<td>15,000 psi (1034 bar)</td>
<td>15,000 psi (1034 bar)</td>
<td>15,000 psi (1034 bar)</td>
</tr>
<tr>
<td><strong>Standard Elastomers &amp; Seals</strong></td>
<td>Standard Elastomers &amp; Seals</td>
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<tr>
<td><strong>Minimum Running OD in (mm)</strong></td>
<td>31.1</td>
<td></td>
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</tr>
<tr>
<td><strong>Temperature Range °C (°F)</strong></td>
<td>260°C (500°F)</td>
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</tr>
<tr>
<td><strong>Base-pipe Range (up to)</strong></td>
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<tr>
<td><strong>Max OD in (mm)</strong></td>
<td>Full bore (as per Base pipe)</td>
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**Large Bore LH & PP**

<table>
<thead>
<tr>
<th><em>Welltec® WAB®</em></th>
<th>812WAB</th>
<th>812WAB HP</th>
<th>812WAB LHP</th>
<th>912WAB</th>
<th>1214WAB</th>
<th>1214WAB LHP</th>
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</thead>
<tbody>
<tr>
<td><strong>Expansion Range in (mm)</strong></td>
<td>8.25 &gt; 10.00</td>
<td>8.25 &gt; 10.00</td>
<td>8.40 &gt; 10.50</td>
<td>9.50 &gt; 10.50</td>
<td>10.25 &gt; 12.50</td>
<td>11.60 &gt; 12.50</td>
</tr>
<tr>
<td>Base Casing Range (up to)</td>
<td>289.1 &gt; 289.1</td>
<td>289.1 &gt; 289.1</td>
<td>289.1 &gt; 289.1</td>
<td>289.1 &gt; 289.1</td>
<td>289.1 &gt; 289.1</td>
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<tr>
<td><strong>Minimum Running OD in (mm)</strong></td>
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</tr>
<tr>
<td><strong>ISO14310 Standard</strong></td>
<td>Up to V0</td>
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<tr>
<td><strong>Maximum Working Pressure psi (bar)</strong></td>
<td>10,000 psi (689 bar)</td>
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<td>15,000 psi (1034 bar)</td>
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<tr>
<td><strong>Minimum Running OD in (mm)</strong></td>
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</tr>
<tr>
<td><strong>Temperature Range °C (°F)</strong></td>
<td>260°C (500°F)</td>
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<td></td>
<td></td>
</tr>
<tr>
<td><strong>Base-pipe Range (up to)</strong></td>
<td>9.56</td>
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</tr>
</tbody>
</table>

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**Custom specification and control line feedthrough options available on request ** V0 Leak Criteria available on request for all WAB sizes ** In development **** Maximum Temperature is based on FFKM seals & elements

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**Non-Elastomer Seals**
PTFE
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.

**How it works...**

**Our product range per open hole size:**

- 5 3/4"
- 6"
- 6 1/4"
- 6 1/2"
- 8 1/2"
- 9 1/2"
- 12 1/4"
- 13 1/2"
- 16"
- 17 1/2"
- 5 3/4"
- 6"
- 6 1/4"
- 6 1/2"
- 8 1/2"
- 9 1/2"
- 12 1/4"
- 13 1/2"
- 16"
- 17 1/2"

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.

**Conventional annular barrier Delta P**  **812WAB Delta P**