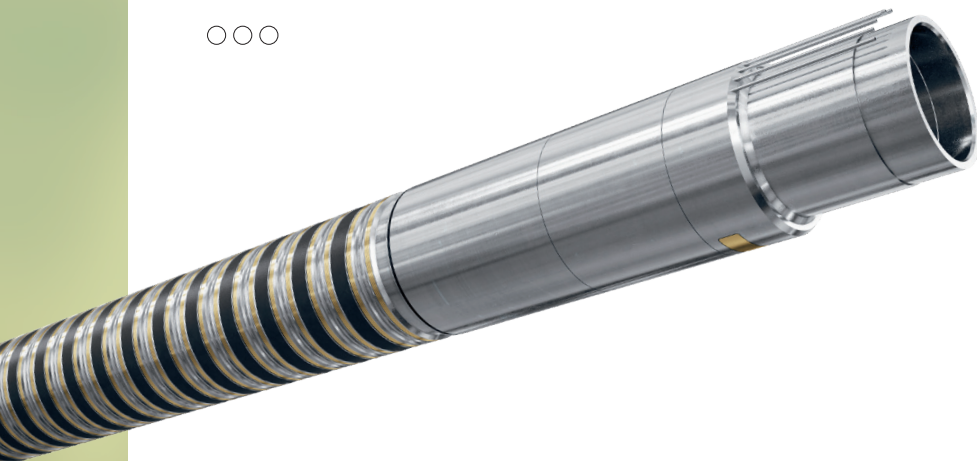


# **WELLTEC®** **ANNULAR BARRIER (WAB®)** CONTROL LINE FEED THROUGH

Through continued evolution of product design, we can now offer the WAB® with the added feature of multiple Control Line Feed Through. This value adding feature now allows for the placement of hydraulically and electrically controlled downhole devices below or between WAB's set within open hole or cased Hole.

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**Welltec®**

Incorporation of the Feed Through WAB, coupled with hydraulically controlled ICV & TEC DHPG, will significantly reduce CAPEX, time and complexity within a multi zone Intelligent Lower completions by removing the need for cementing & perforated a liner by affecting the open hole isolation with the Feed Through WAB.



### Applications

Through WAB communication of Hydraulically activated devices:

- ICV's for Multi Zone Open Hole Smart Wells (WAB Zonal Isolation)
- Ball Valve for Dual Zone Smart Well (WAB for Zonal Isolation)
- Chemical Injection Valves

Though WAB communication of Electrically powered devices:

- Multiple Zonal Pressure Gauge for Open Hole Smart Wells (WAB for Zonal Isolation)
- Downhole Pressure Gauge (WAB Production Packer)
- Fiber Optic Feed Through for distribute temperature sensing across the reservoir (WAB for Zonal Isolation)
- Suitable for all formation types and borehole geometries

### Features

- Upto 6 x ¼" Control Lines
- Hydraulic, TEC & Fiber Control Line Compatible
- Rugged, All welded, Metallic Construction
- Optional isolation of expansion port
- Expansion assurance in multi-WAB applications
- High Expansion Capability
- Constant, High Pressure  $\Delta p$  over full expansion range
- No premature expansion
- NACE Compliant

### Benefits

- Removes need for Cement & Perforated Liner in Multi Zone Smart Well Applications
- Optimises Production Bore in Multi Zone Smart Well Applications
- Deployable through Milled Window
- Slim OD allows for high rate circulation during deployment
- Rapid Set nature of WAB reduces time to production
- High Rate Circulation capability
- Full Bore – as per Casing / Tubing



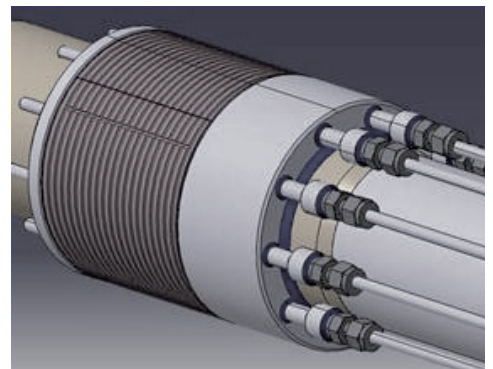
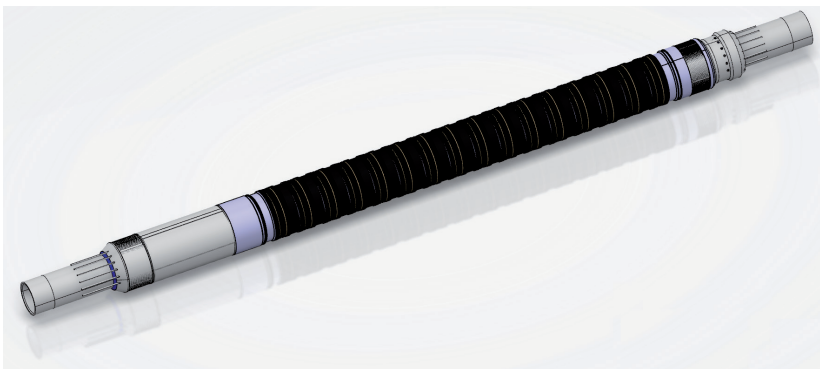
# WCS PRODUCT SPECIFICATIONS

Welltec® WAB® FT	General Information
Product Name	Welltec® Annular Barrier (WAB®) c/w C-line Feed Through
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
No. of Control Line	Upto 6 x ¼" control lines

\*Additional Sealing Length can be modelled on request.

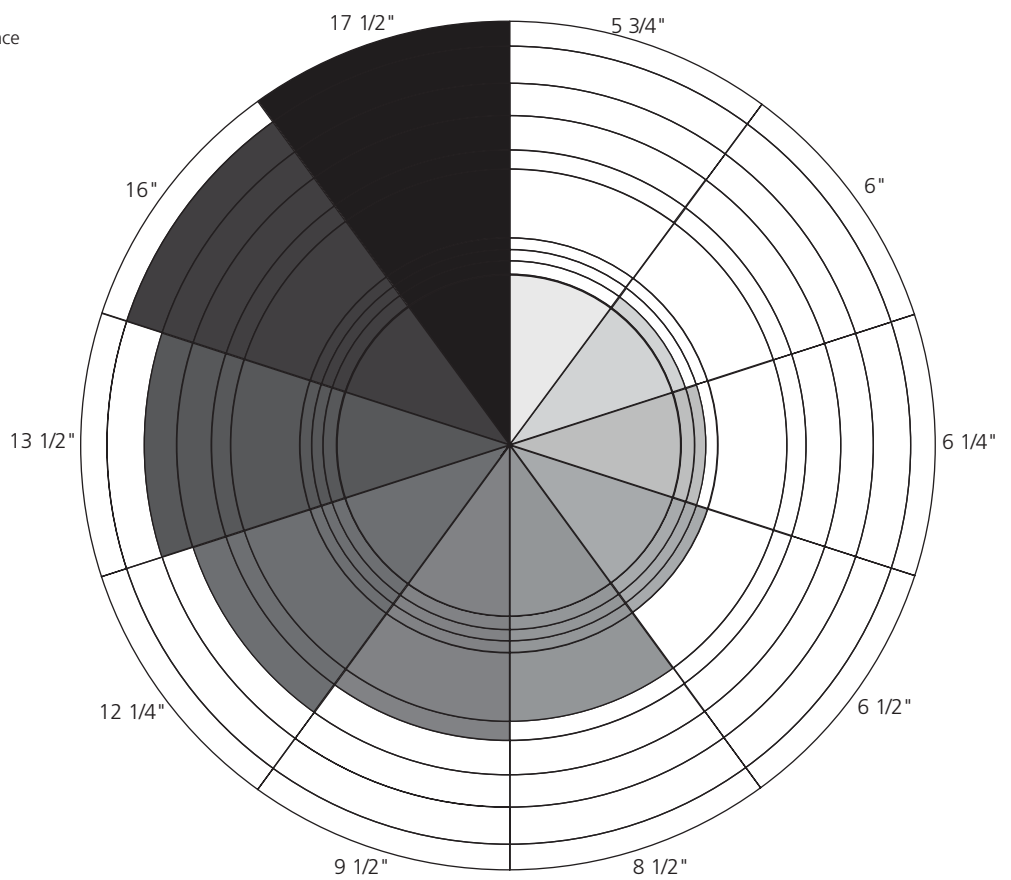
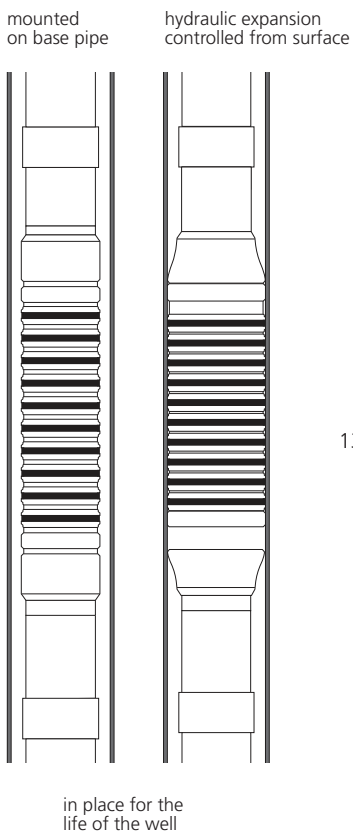
*Welltec® FT WAB®	812WAB	1214WAB			
Expansion Range in (mm)	8.50 > 10.00" (215.9 > 254mm)	12.25 > 14.00" (311.1 > 355.6mm)			
Minimum Running OD in (mm)	8.180" (207.8mm)	11.380" (289.1mm)			
ISO14310 Standard **	V3	V3			
Maximum Working Pres-sure psi (bar)	10,000psi (689bar)	6000psi (414bar)			
Constant Element ΔP Across Expansion Range	10,000psi (689bar)	6000psi (414bar)			
Standard Element Length ft (m)					
Temperature Range °C (°F) ****	260°C (500°F)	260°C (500°F)			
Base-pipe Range (Up To)	5 1/2"	9 7/8"			
ID in (mm)	Full Bore (as per base-pipe)				

\*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



HOW IT WORKS...

OUR PRODUCT RANGE PER OPEN HOLE SIZE:



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.

