

WELL COMPLETIONS | LINER SYSTEMS

VersaFlex® Expandable Liner Hanger (ELH) Lower Polished Bore Receptacle (PBR)

Allows placement below the liner hanger during deployment where it is crossed over to the liner
Optional tie-back seal assembly is run later, as necessary, based on well construction

APPLICATIONS

- Standard applications that require extended polished bores, dynamic sealing, and the capability to retrieve the TBSA
- Often used in conjunction with liner hanger applications where the upper tie-back receptacle pressure rating could limit the overall system pressure rating
- Can be used to keep the ID of the liner hanger from becoming flow wet from wellbore fluid or isolated from wellbore pressure

BENEFITS

- Maintains maximum available IDs through tie-back
- Minimal internal connections for fewer potential leak paths
- Can enhance system pressure ratings
- Isolates liner hanger ID and parent casing ID from wellbore fluid or pressure when used in conjunction with TBSA
- Allows TBSA installation when well construction is necessary and TBSA retrieval
- Allows cemented tie-back operation

Overview

The Halliburton VersaFlex® expandable liner hanger (ELH) lower polished bore receptacle (PBR) is used in conjunction with VersaFlex and XtremeGrip® ELH technology. The lower PBR is a highly polished tube with an inner surface that accepts a mating optional tie-back seal assembly (TBSA). The polished tube inner diameter (ID) is smaller than the existing upper tie-back receptacle on both the VersaFlex and XtremeGrip ELHs. The lower PBR can be furnished in a box × box or box × pin configuration dependent on well construction requirements. The lower PBR features an inner beveled connector to allow unrestricted passage of completion accessories, as necessary. A separately purchased TBSA features a no-go locator and sufficient spacer to provide proper seal placement in the lower PBR to permit dynamic seal movement under loads when spaced out. The no-go locator can be designed to land inside the liner hanger above the lower PBR or at the top of the upper tie-back receptacle.

Operation

Stage 1*: The lower PBR is deployed by threading the accessory to the top of the last joint of liner in the rotary and lowering the lower PBR into the rotary where it is secured.

Stage 2: The cement plug set is made up to the first joint of the inner string and then lowered into the lower PBR. Inner string joints or pup joints are made up while the cement plug set is continually lowered to a depth inside the first liner joint below the lower PBR, with the last joint landed and secured.



(Right) VersaFlex® ELH lower PBR and
(left) optional TBSA

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Stage 3: The Halliburton VersaFlex® or XtremeGrip® ELH with preinstalled running tool is lifted using elevators and raised above the lower PBR with inner string. The inner string is made up to the lower connection of the running tool and the ELH assembly is then lowered and made up into the lower PBR connection. At this point, the entire assembly is lifted and readied to deploy during liner cement operations.

Stage 4: Once the ELH operation is complete and the workstring and ELH running tool are retrieved, the TBSA is deployed and fully landed. It is spaced out to meet well requirements where it is pressure tested. The TBSA provides a floating dynamic seal and maintains equivalent casing ID. The lower PBR and mating TBSA are available in various lengths to help ensure sealing while in dynamic movement.

*If practical and equipment handling lengths are suitable, manageable, and can be safely maneuvered at the wellsite, preinstallation of the entire liner hanger and lower PBR with plug set are recommended to help reduce equipment handling and additional thread makeup where possible.

VersaFlex® ELH Lower PBR Specifications

DESCRIPTION	PRODUCT INFORMATION
Casing Size	13.375 to 14.0 in.
Maximum OD	11.92 in.
Minimum ID	9.870 in.
Mating Seal Bore ID Minimum	9.870 in.
Maximum Length	340.48 in.
Connection Type	Box x Pin
Temperature Rating	40 to 400°F
Service	STD; H ₂ S

SYSTEM FEATURES

Lower PBR:

- Standard lengths of 10, 20, and 30 ft (3.0, 6.10, and 9.14 m) (alternate stroke lengths on request or capability to thread shorter lengths together is a contingency)
- Various material grades and yields available
- Lower PBR IDs are a size smaller than liner hanger upper TBR IDs

TBSA (optional/additional equipment):

- No-go locator
- Premium V-packing seal configurations (other seal types on request)
- Various material grades and yields available
- Variable space out across lower PBR
- Fully retrievable

PRODUCT SELECTION

The VersaFlex ELH lower PBR is available in multiple variations and configurable sizes, PBR lengths, metallurgy, and attribute selections. A TBSA with variable attributes can also be selected for specific well construction solutions.

For more information, contact your local Halliburton representative or visit us on the web at www.halliburton.com

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