Introduction

The time and cost associated with a completion workover can be significant, and intervention solutions play an important role in remediating wellbore deficiencies. Halliburton offers a portfolio of intervention solutions, including retrievable packers and plugs, straddle systems, and field-proven flow control technologies — all specifically designed to keep production online and postpone the need to work over your well.

Our eRED® ball valve and Hydraulic RED valves serve as remotely operated downhole barriers, allowing operators to perform a variety of tasks without the need for intervention.

Finally, we offer retrievable bridge plugs that serve as downhole barriers. These plugs can be deployed by any well intervention method and can be set at any predetermined depth within the wellbore tubing or casing.

The Halliburton full line of straddle and pack-off assemblies offer countless variations for customizable solutions.
Evo-Trieve® Bridge Plug

The Evo-Trieve® bridge plug is a high-performance retrievable monobore plugging device that does not require a predetermined setting restriction for locating or sealing within the production completion. Evolved from the industry-leading HE3®, TR0/TR1, and Monolock® retrievable bridge plugs, the Evo-Trieve bridge plug blends past experience with future industry requirements.

The Evo-Trieve bridge plug is V0-qualified per ISO 14310 to 7,500 psi and up to 325°F. Its robust design includes large slip and element footprints to provide improved pressure-holding capability in unsupported casing. Debris tolerance is verified through a comprehensive flow loop testing program.

The Evo-Trieve bridge plug can be deployed using conventional slickline with the DPU® downhole power unit and can be retrieved with industry-standard GS pulling tools.

Applications

- Particularly suited to applications requiring a qualified barrier-type plugging device located within the tubing string
- Suitable for new completion installation and multiple well maintenance applications throughout the complete life of well cycle
- Readily adapted to install pressure gauges or other associated flow control equipment for a full range of well service demands
- Suited to shallow-set well plugging applications before Christmas tree removal and repairs to surface wellhead equipment

Features

- Supplied with H₂S packing element system as standard for critical well deployment and reduced inventory management
- Superior debris tolerance provided by element positioned above slips complemented by a large ID pressure equalizing feature to resist plugging
- Improved body lock ring system retains element pack-off force during pressure reversals across the plug
- Robust slip system permits no overexpansion in the set position, while remaining mechanically locked in the retracted position when the plug is released
- Time savings delivered through single-trip wireline equalization and plug retrieval operations
- Easily adapted to existing modular extensions for extreme debris environments
- Easy-access top guide sub helps ensure retrieving tool engagement in highly deviated well profiles

Benefits

- Minimized tool diameter and retained packing element offers improved running speeds and operational performance within deviated wellbores and access through tubing restrictions
- Reduced operational costs because tool is retrieved by readily available industry-standard GS pulling tools
- Simplified compact design requires no special assembly tools and is ideally suited for wellsite conversion and remote location operations
- Suitable for deployment in all well types that use slickline, DPU system, electric line, coiled tubing, tractor, and workstring operations

HAL35861

Evo-Trieve® Bridge Plug
# Evo-Trieve® Bridge Plugs

<table>
<thead>
<tr>
<th>Casing/Tubing</th>
<th>Maximum OD</th>
<th>Minimum ID</th>
<th>To Pass Restriction</th>
<th>Pressure Rating (ISO 14310 V0 Tested)</th>
<th>Temperature Rating</th>
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<td>kg/m</td>
<td>in.</td>
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**Part Number Prefix:** P.801EV0

Refer to the relevant Part Number EDS for confirmation of the "below pressure ratings" because these are dependent on casing grade.
HE3®/HX4 Retrievable Bridge Plugs

The HE3® and HX4 retrievable bridge plugs (RBPs) provide a means of isolating the upper wellbore from production or the lower wellbore from a treatment in the upper wellbore.

They can be set at a predetermined depth anywhere in the tubing or casing and can be run and retrieved using conventional well intervention methods. The slip system on the tools’ outer body anchors the plug to the wellbore, while a packing element provides the pressure seal.

The HE3 RBP incorporates a mid-mounted pressure equalization feature that offers single-trip run and retrieve. With an extensive run history, the HE3 RBP is available in sizes ranging from 2 7/8 through 13 3/8 in.

The HX4 RBP is a two-trip run and retrieve version of the HE3 RBP, which is facilitated by a prong and equalizing housing.

Applications

The HE3 RBP is designed for deployment in any type of well, whether horizontal or vertical, oil, gas, or water. Typical applications include pressure testing of the production tubing, packer setting, and completion installation operations.

Additional applications include tree repair or installation, gas lift valve change out, zonal isolation or treatment, temporary well suspension, and packer or annular safety valve punch release.

Incorporating a larger equalizing flow area, the HX4 RBP is ideal for pre-installation in the completion tailpipe and being run with the completion during packer setting operations.

Features

- One-piece dual-modulus packing element
- Compact, modular design
- Large footprint segmented slip mechanism
- Slip mechanism located below packing element
- Slips mechanically retained on retrieval
- Controlled setting action
- Various slip options
- Field redressable
- Can be set using conventional slickline or electric line setting tools, on coiled tubing or workstring, and using the Halliburton DPU® downhole power unit

Benefits

- Allows the tubing to be plugged without the need for a nipple profile
- Removes need for restrictions caused by such nipple profiles
- Reduces risks of premature setting while running in hole and hanging up on retrieval
- Slip mechanism position offers protection from casing debris, thus improving reliability
- Slip design and controlled setting action helps ensure the stresses exerted on the casing or tubing are evenly distributed, thus preventing damage
### HE3®/HX4 Retrievable Bridge Plugs

<table>
<thead>
<tr>
<th>Size</th>
<th>Weight</th>
<th>Maximum OD</th>
<th>To Pass Restriction</th>
<th>Pressure Rating above</th>
<th>Pressure Rating below</th>
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<td>psi</td>
<td>psi</td>
<td>psi</td>
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<td>11.015 275.78 12.187 307.55</td>
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</tr>
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**Part Number Prefixes:** P801HE3, P801HX4
**HERO Bridge Plug**

The Halliburton HERO bridge plug is a high-performance, high-expansion retrievable monobore plugging device that does not require a predetermined setting restriction for locating or sealing within the production completion. Evolved from the industry-leading Evo-Trieve® and Monolock® retrievable bridge plugs, it also incorporates through-tubing bridge plug technology and fulfills future industry requirements.

The HERO bridge plug is V0-qualified per ISO 14310. Its robust design includes innovative collapsible anti-extrusion petals — a proprietary elastomeric element that reduces from the full-set diameter close to that of its original running size. The HERO bridge plug is set with a DPU® downhole power unit tool on slickline, electric line, or coiled tubing, providing conveyance flexibility.

**Applications**

» Ideal for applications requiring a qualified barrier-type plugging device located within the tubing string
» Appropriate for new completion installation and multiple well maintenance applications throughout the complete well life cycle
» Designed to pass through completions with smaller restrictions due to completion design or because of scale buildup or corrosion

**Features**

» 4,000-psi differential pressure
» Retrievable by slickline or wireline DPU tool
» Configurable for multiple uses
» ISO 14310 V0 compliant
» Proprietary elastomer technology
» Anti-extrusion petals for elastomer protection and performance
» Equalization process for retrieval ease
» Centralized above and below the element for increased reliability with sealing

**Benefits**

» Minimized tool diameter and high-expansion packing element offers improved running speeds and operational performance within deviated wellbores and access through tubing restrictions
» Deployable in all well types using slickline, electric line, coiled tubing, tractor, and workstring operations
» The DPU non-explosive setting tool records the setting event, reducing risk and providing confirmation of set
» Equalization of the plug during pulling operation to prevent complications and difficulty during plug retrieval
## HERO Retrievable Bridge Plug

<table>
<thead>
<tr>
<th>Size</th>
<th>Run in OD</th>
<th>Retrievable Maximum OD</th>
<th>Pressure</th>
<th>Temperature</th>
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<td>in.</td>
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<td>°F</td>
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<tr>
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<td>mm</td>
<td>mm</td>
<td>bar</td>
<td>°C</td>
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<tr>
<td>lb/ft</td>
<td>kg/m</td>
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<table>
<thead>
<tr>
<th>Size</th>
<th>Weight</th>
<th>Run in OD</th>
<th>Retrievable Maximum OD</th>
<th>Pressure</th>
<th>Temperature</th>
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<tr>
<td>in.</td>
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<td>in.</td>
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<td>bar</td>
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<tr>
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<tr>
<td>kg/m</td>
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</tbody>
</table>

ISO 14310 might not match the maximum pressures and temperatures the plug will withstand.
Evo-RED® Bridge Plug

The Evo-RED® bridge plug provides a unique and highly efficient method of deploying and retrieving a downhole barrier. What makes it unique is that it incorporates a computer-controlled ball valve that can be remotely opened and closed multiple times without the need for any control lines or interventions.

Each time the ball valve is activated, an intervention is eliminated from the operation, saving a significant amount of rig time, while helping reduce risks to both the operation and personnel.

The plug can be used in a wide range of well operations and is particularly effective as a downhole barrier during workover or completion operations, thus keeping interventions and on-site personnel to a minimum.

Applications
Any application in which a wireline plug is used can be replaced by the Evo-RED bridge plug. Here, the exact same results can be achieved but without repeated interventions, reducing personnel onboard, while saving rig time and the associated costs and risks. Multiple assemblies can be used in a single operation, thus multiplying all the benefits.

» Packer setting device
» Deep-set barrier in extended reach or horizontal wells
» Shallow-set for tree testing and change out
» Liner deployment with external swellable elastomer
» Barrier in temporary abandonments or light well intervention operations
» Barrier in tubing-conveyed perforating gun firing and stimulation operations
» Self-actuating flow control device
» Shut-in tool for pressure buildup tests with reduced interventions

Benefits
» Remote activation minimizes the number of interventions for a wide range of operations.
» A large flow area allows well fluids to wash through the assembly, aiding deployment and retrieval.
» A minimized OD, retained packing element, anti-preset and anti-reset features aid deployment and retrieval.
» A large ID and an element positioned above the slips helps reduce the effects of debris.
» Built-in backup mechanical equalization aids retrieval.
» It can be pre-installed onshore for completion operations. During workovers, it can be retrieved with the tubing. In both cases, this reduces the number of interventions for each operation to one.
» When pre-installed onshore, no dedicated offshore personnel are required during the operation.
Typical Operation

The Evo-RED® bridge plug is run in hole with the ball valve normally in the open position and the slips and element relaxed. Typically, the assembly is deployed on the Halliburton electronically controlled DPU® downhole power unit, which mechanically sets the bridge plug when the target depth is reached.

At this stage, the ball valve remains open and the flow of the well unrestricted. This can be commanded to close at any time using one of the pre-programmed triggers, such as applying between 1,000 and 1,500 psi for 10 minutes.

The well can be equalized at any time by commanding the Evo-RED bridge plug to open using another pre-programmed trigger. This process can be repeated up to 30 times in a single operation, thus providing significant operational flexibility and eliminating an intervention each time.

The assembly is retrieved in a single run using a standard GS pulling tool with PX0 anti-preshear adapter. This latches into the top of the Evo-RED bridge plug, activating the internal equalizing mechanism, which aids recovery and doubles as a backup should the electronics fail. The slips and element retract and are secured in place by the anti-reset mechanism.

The large flow ports on the ball valve and extensive bypass features aid recovery by allowing significant fluid to flow through the assembly, while the minimized OD helps prevent them from fouling on other equipment during retrieval.

### Evo-RED® Bridge Plug

<table>
<thead>
<tr>
<th>Available Sizes (To Suit Casing Size)</th>
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<th>Temperature Range</th>
<th>Maximum Differential Pressure While Opening</th>
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<td>bar</td>
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<tr>
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<td>23</td>
<td>7,500</td>
<td>516</td>
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Because of the significant number of design variables, the information provided is for guidance only.
Hydraulic RED Remotely Operated Equalizing Device

The Hydraulic RED valve is a retrievable well barrier that is deployed in the closed position and subsequently opened by remote command. It is run below a lock or bridge plug and is capable of containing pressures of up to 10,000 psi in either direction until opened. It is suitable for use in virtually any type of well operation in which a temporary downhole barrier is required.

By remotely opening the Hydraulic RED valve, an intervention is eliminated from the operation, reducing rig time and all the associated risks.

Applications
The Hydraulic RED valve can be used in a wide range of differing applications.

» Shallow-set for tree testing and change out
» Deep-set for packer setting and tubing testing
» Zonal isolation
» Subsea plugging operations in which intervention costs are high
» Extended reach or horizontal wells where retrieval of the carrying device might prove problematic
» Pressure testing of a well before fracturing or stimulation operations are performed
» Where the tubing test pressure should not be exceeded to open the equalizing device
» Plug and abandonment operations when the well is temporarily (indefinitely) shut-in

Features and Benefits
» Remote single-shot activation: Run closed, then opened at any time by applying a predetermined pressure over a predetermined time, providing operational flexibility and saving time. Once opened, the device cannot be re-closed.
» Hydraulic mechanism: Can be left downhole virtually indefinitely before being opened. Ideal for operations in which the well is abandoned for extended periods.
» Operates via pressure signals: Ideally suited for long-reach and highly deviated wells where access or retrieval is difficult.
» Repeated tests to maximum pressure: Can be tested to the maximum pressure rating as often as required, without the risk of accidental activation.
» Flexibility: Range of pressure testing does not need to be predetermined, which is ideal for operational program flexibility.
» Flow through: Once opened, the large flow area allows the well to be brought on stream without the need to pull the device.
Operation
The key to the Hydraulic RED valve operation is the pressure discriminator mechanism. This effectively "locks" the device until the predetermined pressure/time window is met (i.e., the command to open is applied).

The "command to open" pressure/time band is typically set between 2,000 and 2,500 psi and held for 10 minutes. (This can vary slightly depending on downhole conditions.) When these conditions are met, the device opens. To prevent opening, the operator simply prevents the opening pressure/time combination from occurring.

To define the operating window, an overview of the well conditions (pressure differential across the device and well temperature) is required. This is done before the device leaves the workshop. Therefore, no pre-installation setup is required at the wellsite.

ISO V1 Qualification
The Hydraulic RED valve was developed in accordance with procedures approved by ISO 9001/2000 and subjected to a comprehensive and extensive testing regime. Testing covered a wide range of simulated downhole conditions, and detailed performance characteristics were established and verified through multiple repeat testing.

Hydraulic RED Remotely Operated Equalizing Device

<table>
<thead>
<tr>
<th>Tool Size</th>
<th>Maximum OD</th>
<th>Overall Length</th>
<th>Minimum Flow Through Area</th>
<th>Maximum Working Pressure Differential</th>
<th>Operating Temperature Range</th>
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<td>in.</td>
<td>mm</td>
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Because of the significant number of design variables, the information provided is for guidance only. Contact your local Halliburton representative for further details.

Primary Materials

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<td>Viton™ RD90 (or customer specified)</td>
<td>HNBR RD90 ED resistant (or customer specified)</td>
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Viton™ is a trademark of The Chemours Company.
Evo-Trieve® Intervention Packer

The Evo-Trieve® intervention packer is a retrievable large bore pack-off device for superior technical and operational performance. This high-performance packer can be set at a predetermined point anywhere in the tubing or casing.

Evolved from the industry-leading B-series monobore intervention product family, the Evo-Trieve packer system features a robust cage-type slip system that anchors the packer to the wellbore while a packing element provides a bi-directional pressure seal.

The Evo-Trieve intervention packer can be run and retrieved with conventional well intervention systems in conjunction with field-proven Halliburton service tools. It is V0 qualified per ISO 14310 to 5,000 psi and up to 275°F.

Applications

The Evo-Trieve intervention packer is a modular utility packer designed to be adaptable for a wide range of monobore intervention applications.

» Primarily used as an anchoring device for the suspension of well intervention tools, including water injection valves, downhole gauges, and Storm Choke® safety valves
» Can be used as an ISO-qualified plugging device by attaching a remote equalizing sub (pump-out plug) or prong equalizing sub
» Serves as a base conversion unit for Evo-Trieve upper sealbore packer and heavy hang-weight packer typically used to deploy velocity strings within gas wells
» Used as part of a system to provide isolation straddle solutions of any length

Features

» Supplied with H2S packing element system as standard for critical well deployment and reduced inventory management
» Packing element positioned above slips for improved debris protection
» Robust slip system permits no overexpansion in set position, while mechanically locked in retracted position when released
» Improved body lock ring system retains element pack-off force during pressure reversals
» Incorporates field-proven sleeve-type release mechanism
» Anti-reset ring helps provide improved retrieval capabilities by locking out external components
» Easily redressed in field or at rig site
Benefits

» Design allows operator to quickly and economically adapt for use in different operational requirements
» Compact design allows deployment in restricted work areas where limited rig-up height availability creates difficult access
» Controlled setting action and slip design helps ensure stress exerted on the casing or tubing is evenly distributed, thus preventing damage

» Mechanically retained slips reduce risks of premature setting while running in hole and hanging up on retrieval
» Packing element design enables it to return to original shape upon release, reducing hanging up risk
» Slip mechanism position offers protection from casing debris for improved reliability
» Packer can be run and retrieved on slickline, electric line, coiled tubing, or workstring

<table>
<thead>
<tr>
<th>Casing/Tubing</th>
<th>Maximum OD</th>
<th>Minimum ID</th>
<th>To Pass Restriction</th>
<th>Pressure Rating (VO Tested)</th>
<th>Temperature Rating</th>
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<td>lb/ft</td>
<td>kg/m</td>
<td>in.</td>
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<tr>
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Part Number Prefixes: P 803EB0; P 803ER0
Evo-Trieve® EB0 Retrievable Straddle

The Evo-Trieve® EB0 retrievable straddle is a high-performance, large bore pack-off straddle device that can be used to seal off damaged or perforated production tubing or casing. Evolved from the successful Evo-Trieve bridge plug and packer product family, the Evo-Trieve straddle system offers improved performance for both production and injection applications.

Run as a single-trip installation, the straddle incorporates dual packing elements, providing bi-directional bubble-tight pressure sealing, while the multi-cone slip system provides a large slip-to-tubing contact area within unsupported tubing. An intermediate spacer assembly can be lengthened to extend the overall straddle length to suit operational conditions.

The Evo-Trieve retrievable straddle is suitable for a range of well environments and can be run and retrieved with conventional well intervention deployment methods in conjunction with field-proven Halliburton service tools. The straddle is V0 qualified per ISO 14310 to 5,000 psi and up to 275°F.

Applications
The Evo-Trieve EB0 retrievable straddle is a modular utility tool designed to adapt to a wide range of monobore tubing isolation applications.

» Used primarily as an ISO-qualified isolation device to restore pressure integrity within leaking production and injection completions
» Can also be used within the sandface section of wellbores for water and gas shutoff for production optimization purposes
» Used to isolate redundant or leaking downhole completion tools, such as side-pocket mandrels or chemical injection subs
» Can be used to repair damaged sand screens and mitigate the effects of sand production

Features
» Standard H₂S packing element system for critical well deployment with reduced inventory management
» Packing element positioned above slips for improved debris protection in adverse operational conditions
» Robust slip system helps prevent overexpansion in set position, while mechanically locked in retracted position when released
» Improved body lock ring system retains element pack-off force during pressure reversals
» Incorporates field-proven sleeve-type release mechanism
» Anti-reset ring locks out external components, improving retrieval capabilities
Benefits

» Modular design allows for variable straddle lengths between elements to suit different operational requirements
» Controlled setting action and slip design helps ensure the stress exerted on the casing or tubing is evenly distributed, thus preventing damage
» Mechanically retained slips help reduce risks of premature setting while running in hole and hanging up on retrieval

» Packing element design returns to its original shape upon release, reducing the risk of hanging up on retrieval
» Retrieved through restriction as part of development program after exposure to maximum temperature and pressure effect
» Can be run and retrieved on slickline, electric line, coiled tubing, or workstring

Evo-Trieve® EB0 Retrievable Straddles

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BB0 Retrievable Straddle

The BB0 straddle is a large bore pack-off device used to seal off damaged or perforated tubing and isolate the annulus from tubing pressure.

Run in a single trip, the straddle incorporates dual packing elements, which provide the pressure seal. The slip mechanisms anchor the straddle to the wellbore and are contained within the two packing elements, protected from produced fines and well debris. An intermediate pup joint assembly can be lengthened to extend overall straddle length if desired. The straddle is run and retrieved using conventional well intervention methods, along with the Halliburton RS and PK service tools.

Applications

The BB0 device is a “utility” straddle designed for a wide range of applications. It is primarily used as a means of isolating damaged tubing or short perforated intervals. The straddle can also be used to isolate redundant or leaking downhole tools, such as side-pocket mandrels and chemical injection subs.

Features

» One-trip run, two-trip retrieval
» One-piece dual-modulus packing element
» Compact, modular design
» High running and retrieval speeds
» Large footprint segmented slips
» Slip mechanisms isolated from the wellbore
» Slips mechanically retained on retrieval
» Controlled setting action
» Large bore ID to OD ratio
» Field redressable

Benefits

» Packing element design enhances the ability to return to original shape upon release, thus reducing the risk of hanging up
» Modular design allows for straddle lengths to be varied from approximately 10 to 40 ft between packing elements
» Slip mechanisms isolated from the wellbore and protected from well debris for improved reliability
» Controlled setting action and slip design helps ensure stresses exerted on the tubing are evenly distributed to help prevent damage
» Mechanically retained slips help reduce risks of premature setting while running in hole and hanging up on retrieval
» Large bore ID reduces production choke
» Device can be run and retrieved on slickline, electric line, coiled tubing, or workstring
## BB0 Retrievable Straddles

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Part Number Prefix: P.815BB0
BR0 Modular Straddle System

The BR0 modular straddle system allows the deployment of long straddles in sections where running in one trip is not possible because of available lubricator height restrictions.

The modular straddle system consists of the BR0 sealbore packer and the RS2 tubing anchor seal assembly. The first run places a lower BR0 packer with integral seal receptacle immediately below the section to be isolated. An RS2 anchor latch, tubing, and upper RS2 seal receptacle (RS2 intermediate assembly) is then run and latched into the lower BR0 packer’s seal receptacle. The required number of RS2 intermediate assemblies are then run to make up the desired straddle length. The final run comprises an RS2 anchor latch, pup joint, and upper BR0 packer.

A total of four RS2 intermediate assemblies can be installed between BR0 packers. If longer straddle lengths are required, intermediate BR0 packers are installed to allow stackup of additional RS2 intermediate assemblies.

Applications

The BR0 modular straddle system can be deployed in any well where communication between the tubing and annulus must be isolated. It is ideally suited for applications in which long straddles must be run but available lubricator lengths will not allow one-trip installation.

The straddle sections can be run and retrieved using conventional well intervention methods.

The BR0 packers use Halliburton RO and PK service tools, while the RS2 intermediate assemblies use the industry-standard GS pulling tool.
**Features**
- One-piece dual-modulus packing element
- Compact, modular design
- Large footprint segmented slip mechanism
- Packing element above the slips offers improved debris protection
- Slip mechanism located below packing element
- Controlled setting action
- OD components rotationally locked
- Field redressable
- Can be run and retrieved on slickline, electric line, coiled tubing, or workstring

**Benefits**
- Helps maintain production and avoid costly well workover operations
- Slip mechanism position offers protection from casing debris, improving reliability
- Reduced risks of premature setting while running in hole and hanging up on retrieval
- Allows high running and retrieval speeds

**RS2 Tubing Anchor**

The RS2 tubing anchor assembly forms an integral part of the BR0 modular straddle system and allows long straddles to be run in sections where lubricator height is limited.

The RS2 incorporates an anchor latch and mating seal receptacle, which are made up with a predetermined length of tubing to form the RS2 intermediate assembly. As multiple intermediate assemblies are run in hole, the anchor latch will land in the preceding intermediate assembly’s seal receptacle, or BR0 packer seal receptacle, to create a tubing-to-annulus seal.

**Features**
- Premium seals
- One-piece seal mandrel
- Secure engagement
- Sequential retrieval

**Benefits**
- Anchor seal units are manufactured from premium materials and are designed to minimize stab-in seal friction.
- One-piece seal mandrels reduce the possibility of tubing leaks within the straddle assembly.
- Anchor latch provides secure engagement within the seal receptacle with an overpull, verifying engagement.
- Predetermined shear screw values help ensure RS2 intermediate assemblies are retrieved sequentially.
### BR0 Modular Straddle System

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**Part Number Prefixes**: P.803BR0, P.250RS2
Retrievable Gas Lift Straddles

Halliburton retrievable gas lift straddles allow for the introduction of controlled gas lift into a well without the need for a costly workover.

Designed to be positioned across pre-punched tubing or set across existing gas lift mandrels that have lost integrity because of erosion or mechanical damage, the injected gas passes through ports on the straddle OD and into the production flow via gas lift valves incorporated within the straddle system. Dual packing elements provide the pressure seal, while a slip mechanism anchors the straddle to the wellbore. The slip mechanism is contained between the packing elements, protected from produced fines and well debris.

The BG0 Econolift™ gas lift straddle is run in two trips with the straddle installed on the first trip. An SU2 gas injection head with integral gas lift valve is then landed and locked into the top of the straddle on the second trip. Should failure of the gas lift valves occur or changes in the wellbore conditions require that the gas lift valves be reconfigured, the SU2 gas injection head can be retrieved and the gas lift valves changed out without the need to retrieve the entire straddle assembly. Dummy (blank) plugs can also be installed into the SU2 gas injection head to isolate the flow path if required.

The GL0 gas lift straddle and the BM0 Econolift gas lift straddle are both run in a single trip with the gas lift valves built into the straddle body. When these gas lift valves need to be replaced, the straddle is retrieved to surface and the gas lift valves are replaced and then repositioned downhole. The BM0 is retrieved in one trip while the GL0 is retrieved in sections over two trips.

Applications
BG0, BM0, and GL0 retrievable gas lift straddles are specifically designed for installation in wells where the cost of a workover cannot be justified or where the well must be closed-in until a workover can be planned. These systems also allow gas injection to depths previously unavailable or where a failed chemical injection sub allows hydrocarbons to enter the injection control line.

Features
» Provides a gas lift solution to suit from 2 7/8 to 7 in.
» GL0 and BM0 straddles run in a single trip; retrieval for BM0 is single trip, GL0 in two trips
» GL0 and BM0 straddles designed to accommodate up to three industry-standard gas lift valves
» BG0 straddle and SU2 gas injection head can be run and retrieved during separate trips
» SU2 gas injection head accommodates up to four industry-standard gas lift valves
» One-piece dual-modulus packing elements
» High running and retrieval speeds
» Large footprint segmented slips
» Slip mechanism isolated from wellbore
» Slips mechanically retained on retrieval
» Controlled setting action
» Field redressable
Benefits

» BM0 straddle can be run and retrieved in a single trip, minimizing rig time

» Although run and retrieved in two trips, the SU2 gas injection head can be recovered, redressed, and replaced without the need to retrieve the entire BG0 straddle assembly

» Cost-effective solution for installation of controlled gas lift in wells with depleted reservoirs

» Allows reinstatement of controlled gas lift in wells where the existing system has failed

» Allows extension of existing gas lift to depths previously unavailable

» Helps prevent the need for a costly workover

» Packing element design enhances ability to return to original shape upon release, thus reducing the risk of hanging up

» Slip mechanism isolated from the wellbore and protected from well debris, thus improving reliability

» Mechanically retained slips reduce the risks of premature setting while running in hole and hanging up on retrieval

» Controlled setting action and slip design helps ensure stresses exerted on tubing are evenly distributed, thus preventing damage

Retrievable Gas Lift Straddles

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Part Number Prefixes: P.815BG0; P.815BM0; P.815GL0
CV0 Retrievable Straddle with Integral Safety Valve

The CV0 straddle is an isolation device designed to be installed across an existing tubing-retrievable subsurface safety valve (TRSSSV) or subsurface safety valve (SSSV) nipple profile, which has lost integrity.

Run and retrieved in a single trip, the CV0 straddle incorporates dual packing elements that seal the flow couplings or pup joints on either side of the TRSSSV or SSSV nipple. A slip mechanism anchors the tool to the wellbore and is contained between the packing elements, protected from produced fines and well debris.

Once in position, the straddle’s integral safety valve is operated conventionally by pressurizing the existing completion hydraulic control line. A selection of Halliburton insert valves is available to suit a variety of applications.

Applications
» Specifically designed for applications in which an existing TRSSSV has lost integrity or the SSSV nipple sealbore has been damaged and can no longer provide a pressure seal
» Provides a fully functional safety valve that helps prevent the need for a costly workover

Features
» Uses existing completion control line
» Adaptable to most completion designs
» One-trip run and retrieve
» One-piece dual-modulus packing element
» High running and retrieval speeds
» Large footprint segmented slips
» Slip mechanism isolated from wellbore
» Slips mechanically retained on retrieval
» Controlled setting action
» Field redressable

Benefits
» Cost-effective solution in situations where the primary safety valve has lost integrity
» Helps prevent the need for a costly workover
» Packing element design enhances ability to return to original shape upon release, thus reducing hanging up risk
» Slip mechanism isolated from the wellbore and protected from well debris, thus improving reliability
» Mechanically retained slips help reduce risks of premature setting while running in hole and hanging up on retrieval
» Controlled setting action and slip design helps ensure stresses exerted on the tubing are evenly distributed, thus preventing damage
» Can be run and retrieved on slickline, electric line, coiled tubing, or workstring
## CV0 Retrievable Straddle with Integral Safety Valve

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Part Number Prefix: P.815CV0
Otis® G Pack-Off Anchors

Otis® G pack-off anchors are designed to set anywhere in the tubing string to straddle and pack off holes or other communication in the tubing string, so well production can be continued without pulling the tubing. Anchors are run and set by wireline methods under pressure without killing the well. Pressure ratings for all Otis pack-off anchors are dependent on packing elements and the condition of the tubing string.

The G pack-off anchor is particularly suited for installations in which high production volume is desired. The use of an internal running and pulling neck permits a large ID. A large bore allows the use of properly sized wireline tools (bottomhole pressure bombs, etc.). The anchor uses an Otis D collar stop or G slip stop at the bottom. The collar stop is designed to locate and lock in the collar recess of upset or non-upset tubing. For streamlined tubing without collar recess, a slip-type lower stop is available. The upper pack-off section is usually anchored with a slip-type holddown. The G pack-off assembly is designed to seal against the tubing wall and is held in its set position by a mechanical lock. It is a pressure-balanced unit designed to seal against pressures from above and below.

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Ordering Information
Specify: tubing size and weight, thread nipple profiles and ID.
Part Number Prefixes: 13GO: G stop pack-off; 3DO: D collar lock