Weight-Down Sand Control Completion System
Eliminate problems associated with tubing movement during frac packing operations

Halliburton leads the way in weight-down, multi-position sand control completion system options. These include weight-down circulating, short weight-down, weight-down/washdown, and weight-down reciprocating systems.

All of Halliburton’s Weight-Down systems offer a number of important benefits including:

• Proven Versa-Trieve® packers and multi-position tools
• Ability to pack in rough seas
• Minimizes effects of vessel heave
• Compensates for tubing movement due to pressure changes
• Reduces the need for tubing position changes while pumping
• Capable of providing live annulus or squeeze options

Weight-Down Circulating (Live Annulus) System
The Weight-Down Circulating System provides positive indication of tool position during squeeze and circulating operations. The run position and gravel packing positions are one and the same. To squeeze pack, the annulus must be sealed. This is the shortest of all systems, but tubing movement during pumping must be controlled.

Short Weight-Down Circulating Tool System
The short weight-down system is ideal when short spacing between zones makes completing the well difficult. It is designed to be extremely short in order to isolate packed zones which are very closely spaced. The no-movement circulating position of the weight-down system allows the flow sub assembly to be substantially shortened. The upper extension is eliminated, and the closing sleeve or flow sub is screwed directly to the bottom of the packer. The shear joint is incorporated into some flow sub designs and the lower extension can be eliminated for the shortest of completion assemblies.

Weight-Down/Washdown Circulating Tool System
The weight-down/washdown system is ideal for open hole completions and/or when the ability to circulate off-bottom is required. Washing operations can be performed across the zone of interest followed by a weight-down circulating pack.
Weight-Down Reciprocating ShurMAC™ System

The weight-down reciprocating ShurMAC™ system provides the ability to maintain weight on the packer in both the squeeze and circulating positions without closing the BOP. Most weight-down systems have only a single weight-down position. With the addition of the ShurMAC collet to the weight-down tool, weight-down can be maintained in multiple positions.

Optionally this system can incorporate a reverse ball that is on seat in the reverse position but fully open in the circulating position for live annulus monitoring. Having the ability to choose between weight-down circulating mode and squeeze mode while the sand control tool assembly is in the well brings these benefits:

- **Safety** - the ShurMAC collet design improves knowledge of tool position during the job
- **FracPac™ treatment improvement** - having live annulus capability when possible allows for better job placement
- **Casing burst prevention** - having the ability to switch to squeeze mode when necessary can prevent casing over-pressure

How do we achieve multi-position weight-down?

The proprietary ShurMAC collet allows the tool to be shifted between squeeze and circulating positions. Tubing set down weight is supported by the ShurMAC collet in the circulating position.
Single-Acting Collet System

With weight on the packer, as long as the compensator can handle movement, the tools can handle the job. The single acting weight-down collet provides a simpler approach to weight-down positioning. This can be used when multiple tool positions are not required, for example on horizontal gravel packs where a squeeze position is never used.
Single-Acting Weight-Down Collet

Single-acting weight-down collets provide a single pass through the restriction in either the squeeze or circulating position. To offer more options, current designs use a single restriction, one multi-acting collet, and a single-acting collet or slip-type stroking device. When used with single-zone systems, this design provides the shortest system and confidence about tool position.

Multi-Acting Ball Check

The multi-acting ball check (MABC) allows flow from the annulus to the formation when in the weight-down position and closes when the multi-position tool is raised to allow tubing to be reversed out. This tool provides a reliable means of opening the back side flow path for frac pack operation pressure monitoring. Friction tubes of varying lengths can be provided to minimize swabbing in varied well conditions.

Washpipe

The washpipe is attached to the gravel pack service tool and run inside the screen. The washpipe serves two functions. First, it provides a return fluid circulation path that can be spaced out at the very end of the screen interval. This path forces the proppant slurry to flow to the lowermost screen before bridging in the screen-casing annulus. The second function of the washpipe is to prevent the proppant carrier fluid from flowing to the outside of the screen. Loss of fluid from a proppant slurry can cause premature and rapid bridging to occur, especially in high density proppant concentrations. A number of studies have verified that the pipe diameter should be at least 80% of the inside diameter of the screen basepipe.

For more information on Halliburton’s Weight-Down Sand Control Completion Systems, contact your Halliburton representative or e-mail us at sandcontrol@halliburton.com.