ES II™ Stage Cementer

Halliburton was the first company to bring multi-stage cementing technology to the oilfield industry. During the mid 1940's, Halliburton introduced the Diverter Valve multi-stage cementing assembly. This tool became an industry standard that is referred to today as the DV™ tool and still remains a term used industry wide to refer to multi-stage cementing equipment or jobs.

Halliburton's newly designed ES™ II stage cementer is a robust stage-tool design, which provides maximum reliability for multi-stage cementing operations. The ES II stage cementer is available in Type H and Type P configurations. Type H can be opened with either casing pressure or an opening plug. The Type P can only be opened with an opening plug. Both types operate with standard Halliburton multi-stage cementing plug sets.

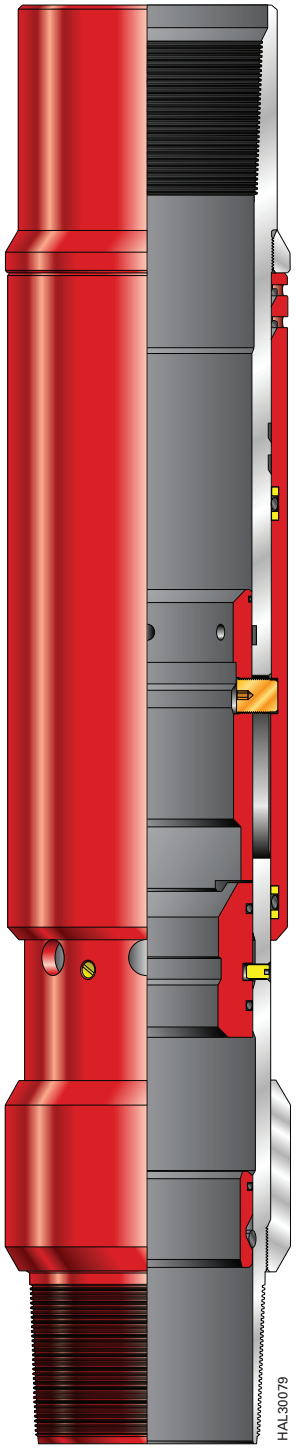
The ES II stage cementer is manufactured in L80 and P-110 grades for common casing sizes and weights. Other grades are available upon special request. The opening and closing pressures can be adjusted in the field to match specific job requirements. Substantial savings in cost can be realized when using the ES II stage cementer while, at the same time, benefiting from exceptional Halliburton reliability. Along with substantial savings there are many advantages.

Advantages

With the use of multiple-stage cementing tools, cement slurry may be placed at selected intervals around the casing string. The latest stage cementing tool designed by Halliburton is the ES II stage cementer. The ES II stage cementer builds on fifteen years of performing stage cementing in support of Halliburton cementing operations worldwide.

The ES II stage cementer is designed for the following applications:

- Wells where the hydrostatic head of the cement is greater than the formation pressure, resulting in a breakdown of low-pressure formations.



Type P ES II Stage Cementer

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- Deep, hot holes where the time to pump the desired quality and quantity of cement is insufficient.
- Where only certain portions of the wellbore require cementing.
- Where different blends of cement must be safely pumped into the wellbore.
- Horizontal wellbores where the bend radius of the well requires cementing.
- Where two to three stages can be cemented.
- With three-stage cementing applications, the lower tool can be a Type H while the upper tool will need to be a Type P. The option of using two Type P tools is also a consideration.
- All ES II stage cementers are rated for continuous service up to 275°F.
- Can be used in surface or subsurface launch applications (such as liners or sub sea applications).

Features

- Short, single-piece mandrel design without threaded or welded segments.
- PDC Drillable.
- Field-adjustable opening and closing pressures.
- Internal smooth bore after drill out with no exposed sleeves to interfere with the operation of workover tools on subsequent trips in and out of the casing string.
- The external closing sleeve allows for the cementing ports to be mechanically covered and not exposed to open formation after drill out.
- Tools have heavy-duty seals and backup rings that help prevent seal damage during operations.
- Compatible with three-stage cementing applications.
- Compatible with second-stage bottom plug sets.
- Halliburton recommends no more than two plug operated stage cementing tools be run in a single application.
- All ES II stage cementers and ESIPC's are PDC drillable with use of Type H (hydraulic open) tool or Type P (plug open) tool in conjunction with a composite free fall opening plug.
- Standard material grades for ES II stage cementers are L-80 and P-110.
- Other casing grades and premium threads can be provided at the customer's request.

New Features For the ES II Stage Cementer

- Dual lock rings for the external sleeve.
- Improved external sleeve locking mechanism provides multiple locking positions that engage consecutively as sleeve closes.
- O-ring seals protected from passing over grooves and debris.
- Angled external closing sleeve to help clear annular debris from blocking the sleeve travel.
- Repositioning of external sleeve lock rings to enhance seal reliability.
- New design allows for higher pressure wellbore operations after drill out.

For more information, contact your local Halliburton representative or email us at cementing@halliburton.com.

www.halliburton.com

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