CEMENTATION AND REHABILITATION TOOLS

Double packer

The double packer is a “tool” made up of two dilatable elements. Assembled on a central tube. It can be used for several applications:

- inflation of a casing annulus packers
- cement grouting
- water circulation into the new casing.

Dilatable elements can be inflated simultaneously or separately.

Connections on the packer are adapted to the rods used for running the system.

This is available in different lengths and diameters.

Casing annulus packer

The casing annulus packer is composed of a thin dilatable element. Assembled onto a tube with the same diameter as the casing to be repaired. It is used to isolate a cementing zone from the lower part of the well. This packer is installed at the toe of the new casing under the cementation valve.

Usually the casing annulus packer is directly connected to the new casing. In case of a repair with PVC tubes, the packer is slipped on the tube (“Slip On” Version) and it is fixed and sealed to the PVC pipe using epoxy resin.
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Cementation valve

The cementation valve is made up of a rubber “sleeve” vulcanized partially onto a tube with the same diameter as the new liner. This tube is perforated and the openings are located under the sleeve. The grout flows through these openings under pressure. The sleeve closes again as soon as the grouting pressure is released. In case of great depth repair, several valves of this type can be installed along the new liner. This allows cementing in several phases and avoids the risk of collapse of the pipe under the cement pressure. The valve is installed just above the annulus packer or the swage packer.

The « Swage Packer »

The “Swage Packer” is a tube (carbon or stainless steel) covered entirely or partially with rubber. This tube is deformed (swaged) with a high pressure packer inside the old casing. It is often used when repair conditions dictate only a narrow clearance between the new and the old casing.
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Cementation and inflation tool

The cementation and inflation tool can be used for a cementation job with a casing annulus packer and a cementation valve. In this case, there is no need to use a double packer.

It is lowered with the drill string inside the casing. The casing annulus packer design allows accurate positioning of the tool.

Once the tool is in position, the inflation of the casing annulus packer is achieved through the rods. As soon as the required inflation pressure is reached and thanks to a system of shear pins and a sliding piston, the tool automatically shifts to the injection position. Injection is also achieved through the rods.

This type of tool allows a complete cementation job in only one operation and does not require the installation of several inflation or injection lines.
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PGP35-5 Grout pump

The PGP-35-5 portable grout pump is operated by air. It is specially designed for injection under pressure of fluids like water, bentonite mud or cement slurry.

It functions on the principle of the ratio of different areas of two pistons. This ratio is 5/1 for the standard version for producing a maximum working pressure of 35 bar. Its weight and its small dimensions make it perfectly adapted to sites with difficult access and can avoid the movement of heavy equipment on the worksite.

P-160 inflation pump

The inflation pump P-160, single or double acting, allows inflation of packers with water. It functions on the principle of the ratio of different areas of two pistons. The smallest ratio is 10/1 with a maximum output pressure of 70 bar under an air inlet of 7 bar.

Other higher ratios are available with output pressures up to 800 bar. This pump allows the maintenance of pressure without consumption of energy and starts again as soon as the pressure falls.

It is adapted perfectly for the inflation of packers in permanent installations.

Grout pressure: 0-35 bar (with inlet air pressure of 7 bar)
Flow rate: 0-45 l/min
Injected fluids: Water, bentonite mud, cement slurry
Dimensions: 700 x 500 x 400 mm
Weight: 38 Kg