

The image features two industrial tools, likely part of a hydraulic system, set against a background of technical drawings and abstract splatters. The tool on the left is a long, black, flexible hose with a silver metal fitting at the top. The tool on the right is a more complex assembly with a silver metal body, a black hose, and a gold-colored tip. The background includes a technical drawing of a mechanical part with a spring and a cross-section of a tool with a nozzle. The overall color palette is dominated by teal, white, and grey, with splatters of teal and white.

**Automatic Fill-up
and circulation system
PL-FACT "ZEUS"**

PL-FACT Automatic Fill-up and Circulation System "ZEUS"

The PL-FACT automatic fill-up and circulation system is a tool used during the run casing into a well. This tool is used to fill the drilling fluid in the casing and to ensure that the drilling fluid circulates at the right time during the run of the casing.

Design Features

The PL-FACT automatic fill-up and circulation system includes:

- **Adapter** for connection to top drive.
- **Safety unit** to prevent damage to the spider elevator and/or the Top Drive during the running of the casing pipes into the well.
- **Circulation unit** used to ensure sealing of the casing string, with the possibility to rotate and circulate fluid during the running into the well.
- **High-pressure flexible hose** provides a flexible connection, compensating for the displacement of the top drive axis relative to the casing string axis.
- **Check valve** for pumping fluid or filling up casing pipes during running into the well.
- **Guide nose** simplifies entry of the automatic fill-up system into the casing pipe and centers equipment during circulation.

FEATURES:

- **Functionality:** The system allows to restore of circulation at any step of the casing run into the well.
- **Adaptability:** The PL-FACT Automatic Filling and Circulation System is available for casing diameters from 7" (177,8 mm) to 13 3/8" (339,7 mm) and can be configured to the type and size of casing running (optional).
- **Efficiency:** The system makes it possible to fill the casing string efficiently during the run without losing additional time.

Nº п/п	Technical specification	Value
1	Maximum circulation pressure, Mpa	21
2	Maximum fluid flow rate for casing pipes 7" (177,8 mm), l/s	30
3	Maximum fluid flow rate for casing pipes 9 5/8" and 13 3/8" (244,5 mm and 339,7 mm), l/s	50
4	PL-FACT system compatibility with different top drive units	Yes
5	Minimum internal diameter of the system, mm	89
6	Material of the equipment	AISI 4140/ AISI 4145
7	Strength grade	P-110
8	Material packer seal	HNBR
9	Type connection	NC 50 (4 ½ IF)
10	Maximum pressure for flexible hose, Mpa	30
11	Operating temperature min (max), °C/°F	-30 (+150) -22(+302)

