

Oriented Perforating

Optimize the reservoir connection and minimize risks of fiber-optic and hydraulic line damage during completion

Rated to 365 degF [185 degC]

Rated to 18,000 psi [124 MPa]

Applications

- Initial completions or recompletions
- Horizontal and deviated wells
- Wellbore preparation for hydraulic fracturing or sand control operations

How it improves wells

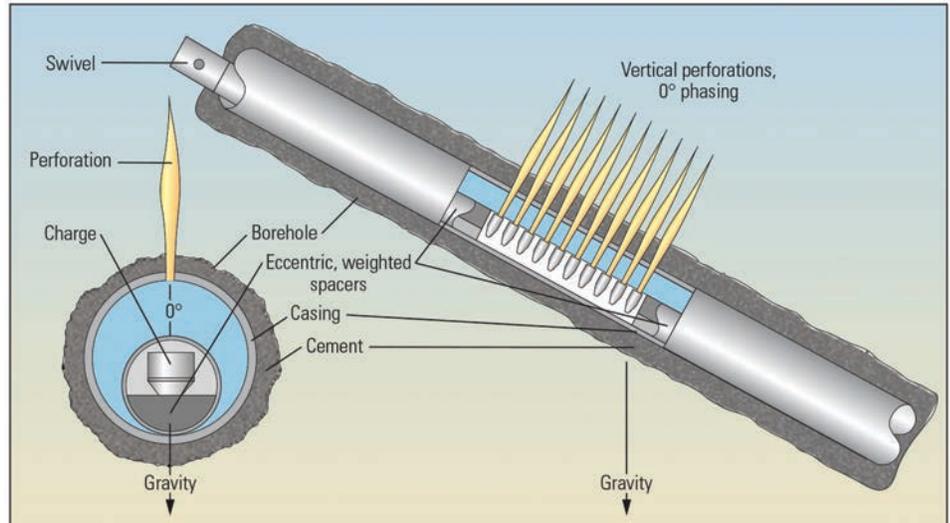
- Prevents damage to fiber-optic data lines and minimizes risk of fluid cut during subsequent fracturing operations
- Minimizes near-wellbore tortuosity, fracture reorientation, and risk of early screenout in hydraulic fracturing and sand control operations such as frac packs

How it works

The oriented perforating suite of tools is used to identify and avoid fiber-optic lines or other obstacles on the outside of the casing. It can also be used to perforate at a specific angle that connects to reservoir rock with desirable properties such as formation stress and sand consolidation.

During the first run, we identify the depth and orientation of behind-casing features by using the DC-powered Schlumberger completion mapper tool to generate a directional magnetic field that rotates with the tool. Changes in metal mass, such as a control line, cause a change in magnetic flux, which is recorded at its specific angle and depth.

Based on information from the logging run, perforating guns are passively oriented using offset weights. As the guns are run into the well, they rotate so that the weights are at the bottom of the wellbore. A ruggedized relative bearing measurement ensures that charges are at the desired angle prior to perforating.



Zero-degree oriented perforating in a highly deviated wellbore.

What it replaces

Conventional perforating without features that enable orientation.

Additional information

Rugged, reliable, precise tools are only a part of the equation for successful oriented perforating. The right people and processes ensure that each step is completed systematically, from logging and interpretation through surface orientation and confirmation, and finally perforating.

Completion Mapping and Relative Bearing Tool Specifications	
Temperature rating, degF [degC]	365 [185]
Pressure rating, psi [MPa]	18,000 [124]
Outside diameter, in [mm]	1.75 [44]
Make-up length, in [mm]	71.75 [1,822]
Weight, lbm [kg]	24 [10.88]
Tensile strength, lbf [kN]	60,000 [266.9]
Shock (Z-axis)	1,000 g _r , 0.05 mS
Shock (X-Y axis)	1,000 g _r , 0.05 mS
Angular resolution	10°
Vertical resolution, in [mm]	12 [305]
Relative bearing resolution	5°
Logging speed, ft/min [m/min]	60 [18.28]