

Direct Hydraulic Firing System

Introduction

The **Direct Hydraulic Firing Head** is designed to initiate a Tubing Conveyed Perforating (TCP) assembly at a predetermined setting by the application of pressure directly through the tubing string.

The **Direct Hydraulic Firing Head** is used in TCP applications where a drop bar activated firing head is undesirable or impractical e.g. horizontal or deviated wells; extreme overbalanced perforating or completion assemblies where a drop bar use might cause damage or production problems following gun detonation. The **Direct Hydraulic Firing Head** may also be used in tandem with itself or other firing heads to provide **Redundancy**.

Operation:

Pressure applied from surface through the fluid column in the tubing string acts on a piston release sleeve assembly, which is secured by a number of calibrated shear pins. The number of shear pins determines the pressure at which the head fires. Breaking the Shear Pins allows the applied pressure to drive the **Release Sleeve** downwards and the firing pin into the Initiator.

The **Automatic Drain or Vented** version of the tool has vents in the Top Sub, which are exposed as the Piston is driven down, allowing the tubing string to drain after firing. A unique snap mandrel assembly in the Firing Head holds the piston down after firing, ensuring the Piston will not be forced back over the vent holes by gun detonation pressure or venturi action.

The **Non Vented** version does not have vent holes in the top sub

The **Circulating** version has circulation ports in the piston, which allow circulation between the tubing and tubing/casing annulus prior to firing. Before firing, a neoprene coated steel ball is dropped into position in the recess at the top of the piston to close the circulation

Features:

Extremely compact - over all length of the TCP firing head assembly kept to a minimum.

Unique hold down mechanism ensures Piston remains clear of vents after firing.

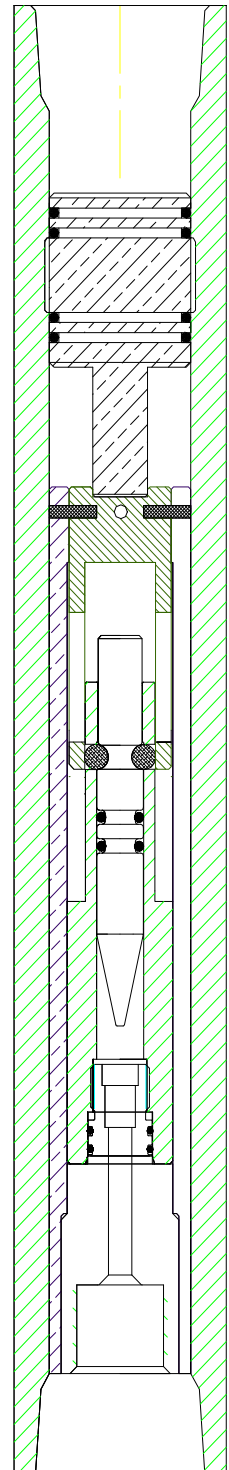
Screws directly on to most popular gun top subs.

Suitable for use with several proven and widely available Initiators.

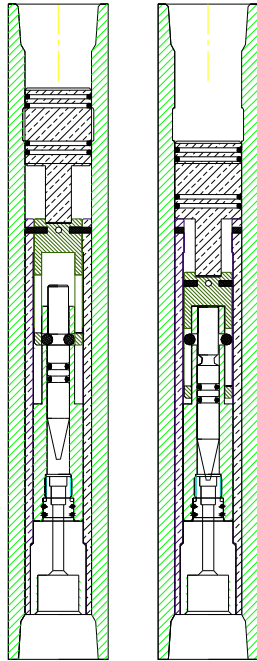
Uses compatible interchangeable parts with the other Oiltech firing heads,

Operating range

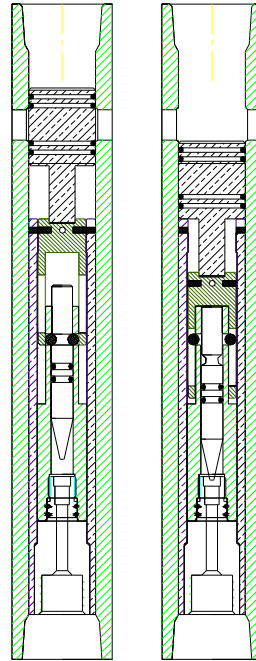
Low Pressure Version: 810 psi (5584 kPa) to 7290 psi (50264 kPa) in 405 psi (2792 kPa) increments



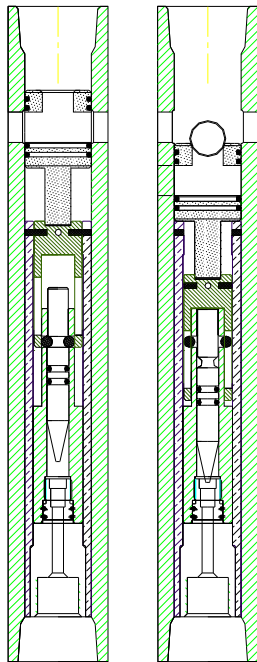
Direct Pressure Fired



Vented Direct Pressure Fired



Circulating Direct Pressure Fired



Differentially Pressure Fired.

