

eFire-CT

Coiled tubing–deployed electronic firing head

APPLICATIONS

- Coiled tubing explosive services
 - Perforating
 - Tubing and casing cutters
 - Packers, plugs, and punchers

BENEFITS

- Combines two field-proven technologies to provide a safer, more economical operation
- Reliable operation under changing conditions and in all well types, including highly deviated wells, improves productivity
- Reduced requirement for equipment on location simplifies operations and helps reduce costs
- Firing head is immune to radio frequency (RF) interference—no radio silence required
- Job sequence verified by the firing head job log
- No primary high explosives required
- Ability to abort the perforating operation at any time

FEATURES

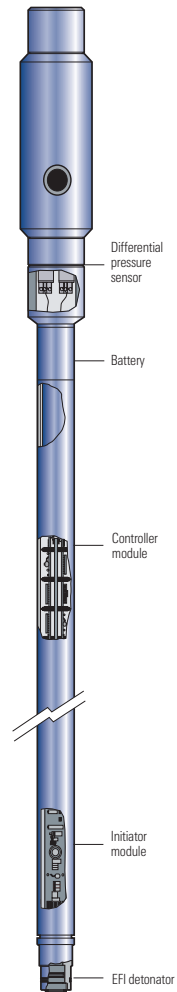
- Tool responds only to surface commands and is insensitive to well conditions
- Programmable command sequence ensures precise control of operations
- Firing head uses an RF-safe, exploding foil initiator to start the detonation chain
- Job log is stored in the tool for postjob evaluation

Conventional methods for perforating and setting packers and plugs conveyed on coiled tubing often requires presetting operating windows. Once commenced, the operation typically cannot be aborted unless the tool is removed from the operating window, or unless the operating parameters are changed, which is a major disadvantage to operations.

The eFire-CT* coiled tubing–deployed electronic firing head overcomes these disadvantages, providing a more efficient and more economical means of performing a wide range of downhole explosive operations—from perforating with through-tubing equipment or HSD* high shot density perforating gun systems to setting packers or plugs and running cutter services.

The eFire-CT firing head arms after a programmable delay time. Once the delay time has passed, the controller in the eFire-CT firing head looks for a specific coded sequence of pump rate changes through the coiled tubing. Because the firing head requires a specific command, it is insensitive to other pressure and pumping operations and limited only by the coiled tubing.

Additionally, the eFire-CT firing head does not require displacing a ball to its seat to operate. The operator can abort the firing sequence at any time prior to detonation, and the firing head is less sensitive to debris, which improves reliability in harsh operating conditions.



eFire-CT coiled tubing–deployed electronic firing head.

Specifications

	1 ¹¹ / ₁₆ -in OD eFire-CT firing head	2 ⁷ / ₈ -in OD eFire-CT firing head
OD, in [mm]	1.707 [43.3]	2.875 [73]
Temperature rating, [†] degF [degC]	330 [165]	330 [165]
Pressure rating, psi [MPa]	15,000 [103]	15,000 [103]
Length, in [cm]	76.31 [193.8]	100.85 [256.16]
Tensile rating, lbf [kN]	30,000 [133.4]	105,000 [467]
Shock rating, g _n	500 (20 shocks at 0.5 ms)	500 (20 shocks at 0.5 ms)
Battery autonomy, h	240	240

[†]Ballistic components limit tool operation of version 3 to HMX time and temperature ratings.