

eFire-SL

Slickline-deployed electronic firing head

APPLICATIONS

- Tubing cutter
- Tubing puncher
- Perforating
- Packer and plug setting
- Dump bailing
- Downhole sampling

BENEFITS

- Elimination of parameter runs reduces operating time
- Selective firing of two tools decreases the number of runs
- Total operator control of the firing head increases efficiency and precision
- The ability to abort at any time and no primary high explosives enhance safety
- Combination of field-proven technologies provides safer, more economical operation
- Firing head is immune to Radio Frequency (RF) interference
- Reliable operation under changing conditions and in all well types, including highly deviated wells, increases productivity

FEATURES

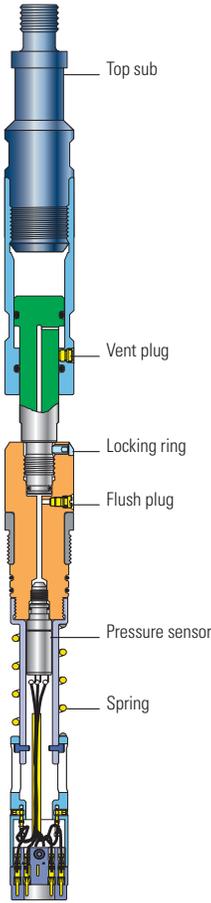
- Tension converter converts line manipulation into pressure signals for controller circuits
- Controller circuits initiate firing sequence
- Firing head uses a reliable, safe exploding foil initiator (EFI) to start detonation chain
- Firing head is certified for 15,000 psi, temperature to 320° degF and H²S and acid well conditions
- Programmable command sequence ensures precise control of operations
- Tool responds only to surface commands and is insensitive to well conditions
- Job log is stored in the tool for postjob evaluation

Using slickline to detonate perforating guns, initiate chemical cutters, or to set packers and plugs has traditionally used activation methods based on preset pressure or temperature settings. These methods often require a survey, or parameter, run and rely on static well conditions during all operations. Inside the preset operating window, the firing process is automatic, and the operation cannot be aborted unless the tool is removed from the operating window, or the operating parameters are changed by other means—a major disadvantage for cost effective operations and productivity.

The eFire-SL* slickline-deployed electronic firing head eliminates these disadvantages. Designed to give the operator total control of the operation, the eFire-SL head uses a unique, coded sequence of tension pulls on the slickline wire to create pressure pulses, which are translated into a special signature to communicate with the firing head.

The eFire-SL head is fully controlled from the surface and does not require prerecorded downhole parameters. With total control, similar to the control in an electric line perforating operation, the operator can arm, fire, or abort the operation at any time. This innovative firing head uses proven technology with existing electric line initiator technologies and a newly developed slickline tension convertor to offer a safer and more economical method for remedial well operations.

This eFire-SL firing head is designed for perforating, setting packers and plugs, initiating chemical cutters, sampling, and other procedures.



eFire-SL slickline-deployed electronic firing head.

Specifications

	eFire-SL Head	eFire-SL Head, Version 3
OD, mm [in]	43 [1.688]	43 [1.688]
Temperature rating, [†] degC [DegF]	160 [320] (at 400 h) 150 [302] (at 1,000 h)	At 100 h: 177 [350] At 1,000 h: 150 [302]
Pressure rating, MPa [psi]	103 [15,000]	103 [15,000]
Length, cm [in]	206 [81.2]	182 [70.71]
Tensile rating, kN [lbf]	133 [30,000]	133 [30,000]
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.

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