

## ACTive OptiFIRE

### CT real-time selective perforating and activation system

#### APPLICATIONS

- Selective perforating
- Plug setting

#### ADVANTAGES

- Live well intervention capability
- Selective perforating capabilities
- No need to overdisplace fractures when running plug-setting tools
- Downtime reduction through successful first attempts
- Robust selective-firing multiple-gun system in a single run
- Accurate depth control and real-time pressure and temperature monitoring using the ACTive\* real-time downhole coiled tubing services
- No ball drop or pressure pulse required for detonation
- Capability of addressing pumping issues in subhydrostatic wells
- Less formation damage
- Immunity to radio frequency (RF) interference, so no radio silence required
- Improved safety from addressing each gun with advanced switches and using the Secure2\* RF-safe electronic detonator
- Reduced footprint
- Real-time downhole measurements
  - Bottomhole pressure (BHP) and temperature (BHT) for optimized fluid placement and hydrostatic pressure control
  - Casing collar locator, gamma ray, or both for depth control
  - Fast-acquisition accelerometer for detonation confirmation
  - Real-time feedback on firing for increased safety
- No need to pump fluid to detonate
- Ability to fire up to 10 zones in single run
- Use of electronic safety key and pin for reduced risk during perforating

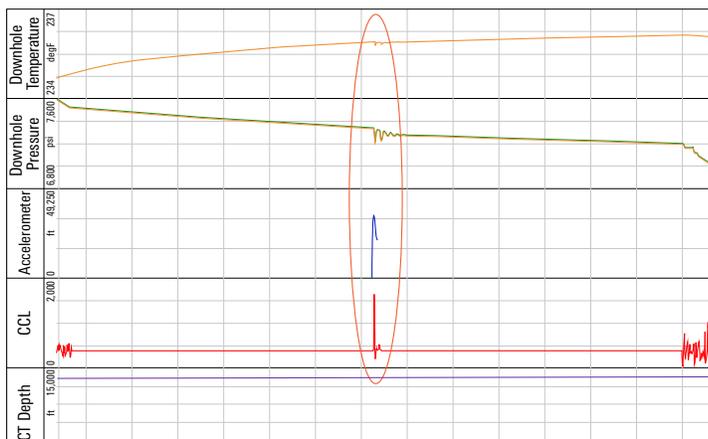
Conventional methods for perforating with CT often require some compromise, either on efficiency (multiple runs required), operating restrictions (limitations of common perforating heads), or safety (detonation confirmation).

Deployed with the ACTive Perf\* CT real-time perforating service, the ACTive OptiFIRE\* CT real-time selective perforating and activation system eliminates all of these compromises, providing a safer, more economical, and more efficient method for perforating with CT.

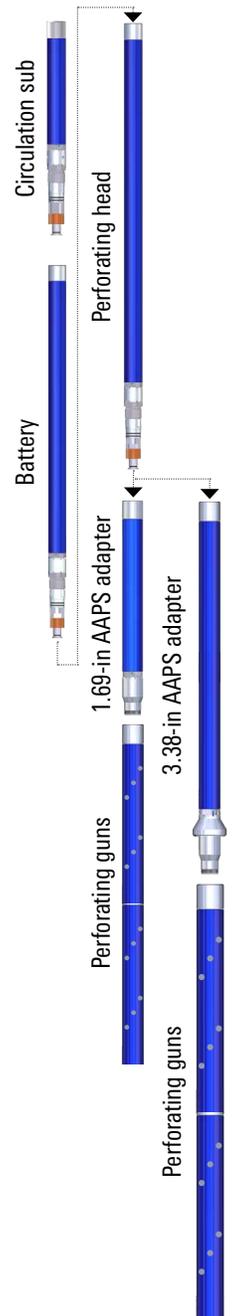
The system is designed so that it does not require a ball drop or a pressure pulse system to detonate. It can be used with a wide range of perforating guns that are compatible with Secure2 RF-safe electronic detonators and addressable switches. This flexibility enables arming the guns on demand and firing each gun individually, with unprecedented perforating optimization.

The ACTive OptiFIRE system is armed after it is run in hole and programmed using wireline protocols through a surface system in the CT cabin, eliminating the need for a wireline unit or cabin.

After the depth control procedure is performed with the casing collar locator (CCL) and gamma ray tool that are also part of the ACTive service, the surface system protocol arms and selectively fires individual guns from the bottom up. The system uses batteries downhole to activate the guns. Plug setting can be achieved with a command sent to the setting tool, allowing for a controlled and timely method of setting the plugs and perforating selectively on a single run.



Real-time detonation indication (in oval) showing pressure, temperature, and CCL confirmations. The system also allows for postdetonation data download from downhole accelerometers showing shock.



ACTive OptiFIRE system.

# ACTive OptiFIRE

## Specifications

Operating temperature range, degF [degC]	-40 to 302 [-40 to 150]
Pressure rating, psi [MPa]	12,500 [86]
Flow rate, <sup>†</sup> bbl/min [m <sub>3</sub> /min]	2 [0.31]
Max. gun size, in	3.375-in HSD* high-shot density perforating gun system
Gun compatibility	Carrier guns only
Max. number of selective zones	10
Max. OD of element before expansion, in [cm]	2.125 [5.40]
Tensile strength, lbf [N]	40,000 [177,900]
Compressive strength, lbf [N]	10,000 [44,480]
Number of total guns	Depends on tensile strength
Detonator type	Secure2 RF-safe electronic detonator

	<b>2.125-in OD Tool with 1.69-in Adapter</b>	<b>2.125-in OD Tool with 3.38-in Adapter</b>
Diameter, in [cm]	2.125 to 1.69 [5.40 to 4.30]	2.125 to 3.38 [5.40 to 8.60]
Makeup length, in [cm]	114.9 [291.8]	120.2 [305.3]
Total weight, lbm [kg]	86.4 [39.2]	102.4 [46.4]

<sup>†</sup>Pumping rate above the firing head limitation

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**Schlumberger**