

## Top-Fired Dual Firing Device

The Top-Fired Dual Firing Device provides a dual firing method for all Expro gun systems, sizes 3<sup>1</sup>/<sub>8</sub>" through 7".

The Top-Fired Dual uses a standard Expro firing system, such as the Safety Impact or Pyrotechnic Delay Firing Assembly as the primary means of detonation and incorporates a pyrotechnic delay backup firing system as an integral component. This firing system can be configured to meet a variety of well conditions and parameters.

### Operation:

The primary firing system is selected, shear-pinned if applicable, and installed on the Top-Fired Dual Firing Device. The back-up firing system is shear-pinned and configured for the specified bottom-hole pressure and well conditions. After the bottom-hole assembly is positioned at depth, a detonating bar is dropped or the well is pressurized to overcome the shear pins and detonate the guns.

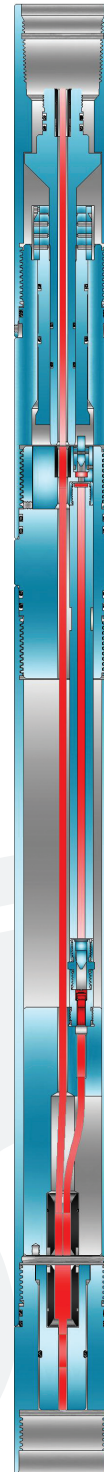
### Features and Benefits:

- Flexible completion design. Firing options may be pressure or drop bar combination
- Extremely safe and reliable
- Ideal for overbalanced or underbalanced perforating
- Well-suited for highly-deviated completions
- Back-up firing method can be selected for instantaneous detonation or delay interval easily increased in 10-minute increments
- Easily reconfigured and repinned in the field
- Available for 2<sup>7</sup>/<sub>8</sub>" guns upon request
- Available without delay
- Readily adapts to Annular Pressure Firing System

### Specifications:

Tubing Thread	2 <sup>3</sup> / <sub>8</sub> " EU 8RD API standard pin up
Length	
10-min	28.3" (0.72 m)
20-min	43.0" (1.09 m)
30-min	57.7" (1.47 m)
Diameter	3.125" (79.375 mm)
Pressure Rating	
Collapse	18,000 PSI*
Burst	N/A
Seal Rating	10,000 PSI standard; 20,000 PSI high-temp.
Tensile Strength	170,000 lbs.

\*A high-pressure and high-tensile-strength design is available for guns 3<sup>3</sup>/<sub>8</sub>" and larger



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