

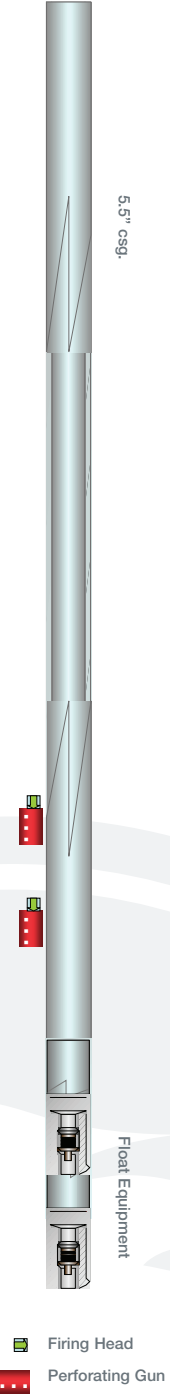
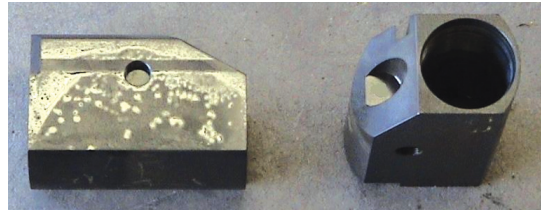
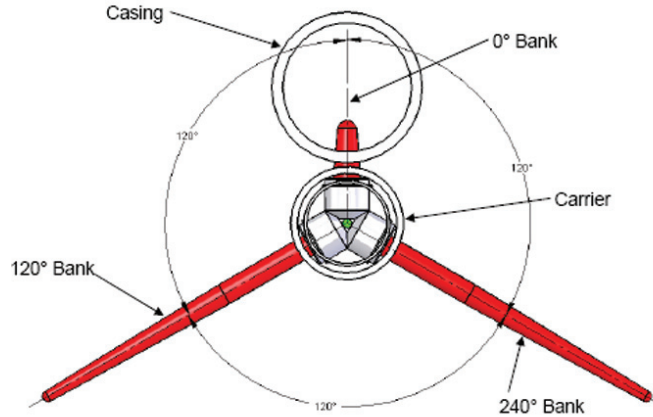
Explosive Services



Toe Gun Eliminator

Expro's Toe Gun Eliminator is used to save expensive completion time by reducing the number of coil tubing runs required to perforate the Toe of the formation on a horizontal well.

The Toe is perforated to displace the Pad frac fluids and establish fracture pressures and injection rate for the formation. The TGE is TCP guns mounted to the outside of the casing and actuated by pressure up the ID of the casing and bursting a rupture disc. Multiple guns, shots per foot and perforation intervals can be easily configured with this system.



Summary:				
Item	Conventional HZ Completion	Casing Conveyed TGE Completion	Savings	Percent Reduction
Cumulative completion days, prior to frac	4.5 days	1 days	3.5 days	78% LESS initial completion time
Total completion cost, prior to frac	\$55,250	\$20,100	\$35,150	64% LESS completion cost, prior to frac
Man-days of personnel exposure	12.5 man-days	1 man-days	11.5 man-days	92% REDUCTION in personnel exposure

- Features & Benefits:**
- Eliminates Typical Operations such as Rig Up Work-over Unit or Coil, Trip/Push Guns to Toe, Trip Out of Hole, Rig Down and Release Unit. Save Time. Save Money!
 - TCP guns run on the outside of the casing and cemented at depth near the Cement Shoe
 - Reliable Rupture Disc actuated Perforating Gun systems. Simply pressure up the ID of the casing to fire
 - Multiple Shot configuration; typically 3 shots per foot (2 out into the formation / 1 into the casing)
 - Multiple Gun configurations; all connected to a single actuation event
 - Multiple Length configuration; 2 feet to 20 feet intervals

TGE Sizing Chart:

System diameters of Toe Gun Eliminator			
Casing Size	Diameter	Min. Rec.	Notes
	OD/Effective OD	Bore Hole	
3 1/2	6 1/2	7 1/2	Available in single gun w/o delay or multiple gun w/delay
4 1/2	7 1/2	8 1/4	
5 1/2	8 3/8	8 3/4	

Other gun sizes available.

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