

EQUAfrac® OP: Consistent-hole shaped charges designed for oriented perforating

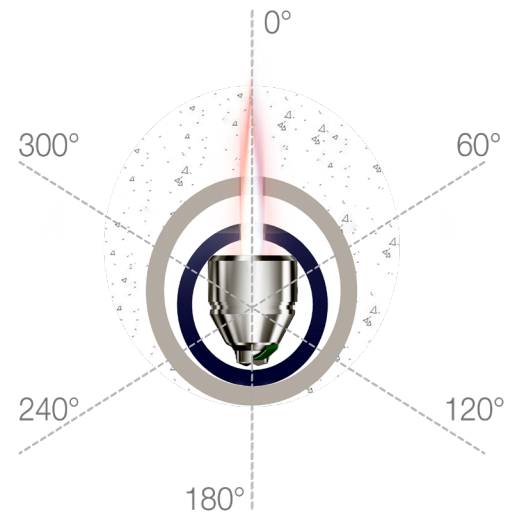
Titan Division | Energetics

Oriented perforating increases the likelihood that each entry hole is the same size because the perforation jets travel across the same fluid distance between gun carrier and casing. Equal entry-hole size is important because it ensures that frac fluids are distributed more evenly among each perforation zone for optimal stimulation. Research by leading E&P companies indicates improved fracturing results with oriented perforating, specifically when using limited-entry completion designs.

Hunting's new line of EQUAfrac OP shaped charges improves on the industry leading consistent-hole EQUAfrac technology through rigorous design and testing with all charges in a single orientation. By focusing on a single phase, EQUAfrac OP provides the most consistent oriented perforations in the industry.

Benefits

- Entry hole variation as low as 1%
- Ideal for limited entry completion designs
- Improves well productivity
- Optimal depth of penetration
- Minimal perforating gun debris
- Designed and tested for use in single-phase, oriented perforating



Orientation	Gun O.D. (in) [mm]	Charge Part Number	Target Type	Exp. Weight (g)	Exp. Type	Shot Density (SPF) [SPM] Phasing	Average Entry Hole (in) [mm]	Entry Hole Range (in)[mm]	Decentralized EHD Variation	Penetration (in)[cm]	Test Type
0°	3-1/8 [79]	SCH-3118-381	5-1/2 inch OD, 20#, P110	18	RDX	4 [13.3] 0°	0.34 [8.63]	0.33-0.35 [8.38-8.89]	3.5%	7.5 [19.05]	Gun/QC Spec
		SCH-3118-381	5-1/2 inch OD, 23#, P110	18	RDX	4 [13.3] 0°	0.34 [8.63]	0.33-0.35 [8.38-8.89]	2.2%	7.5 [19.05]	Gun/QC Spec
		SCH-3121-381	5-1/2 inch OD, 20#, P110	21	RDX	4 [13.3] 0°	0.39 [9.90]	0.39-0.40 [9.90-10.16]	1.0%	7.5 [19.05]	Gun/QC Spec
		SCH-3121-381	5-1/2 inch OD, 23#, P110	21	RDX	4 [13.3] 0°	0.40 [10.16]	0.39-0.40 [9.90-10.16]	1.8%	7.5 [19.05]	Gun/QC Spec
		SCH-3123-381	5-1/2 inch OD, 20#, P110	23	RDX	4 [13.3] 0°	0.45 [11.43]	0.44-0.46 [11.17-11.68]	2.0%	7.5 [19.05]	Gun/QC Spec
		SCH-3123-381	5-1/2 inch OD, 23#, P110	23	RDX	4 [13.3] 0°	0.45 [11.43]	0.44-0.46 [11.17-11.68]	1.9%	7.5 [19.05]	Gun/QC Spec
	3-3/8 [86]	SCH-3123-382	5-1/2 inch OD, 20#, P110	23	RDX	4 [13.3] 0°	0.51 [12.95]	0.50-0.52 [12.70-13.21]	1.5%	7.5 [19.05]	Gun/QC Spec
		SCH-3123-382	5-1/2 inch OD, 23#, P110	23	RDX	4 [13.3] 0°	0.51 [12.95]	0.50-0.51 [12.70-12.95]	1.2%	7.5 [19.05]	Gun/QC Spec
		SCH-3323-381	5-1/2 inch OD, 20#, P110	23	RDX	4 [13.3] 0°	0.54 [13.72]	0.52-0.56 [13.21-14.22]	2.7%	7.5 [19.05]	Gun/QC Spec
		SCH-3323-381	5-1/2 inch OD, 23#, P110	23	RDX	4 [13.3] 0°	0.55 [13.97]	0.54-0.56 [13.72-14.22]	1.9%	7.5 [19.05]	Gun/QC Spec
		SCH-3330-381	5-1/2 inch OD, 20#, P110	30	RDX	4 [13.3] 0°	0.61 [15.49]	0.60-0.63 [15.24-16.00]	2.9%	7.5 [19.05]	Gun/QC Spec
		SCH-3330-381	5-1/2 inch OD, 23#, P110	30	RDX	4 [13.3] 0°	0.62 [15.75]	0.61-0.65 [15.49-16.51]	3.2%	7.5 [19.05]	Gun/QC Spec