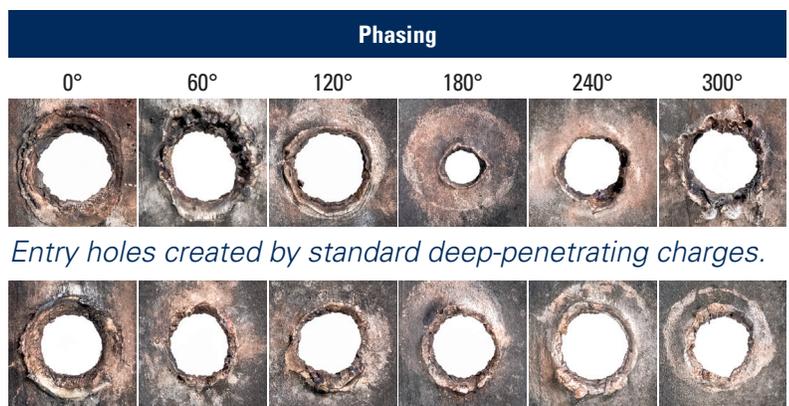


Consistent perforation entrance hole (EH) diameters are essential to optimizing fracturing efficiency. Perforating EH diameters must be large enough to prevent proppant bridging and consistent in size for accurate limited-entry designs.

With conventional 60-degree perforating systems, EH size can vary up to 40% depending on gun positioning, charge type and water clearance between the perforating gun and the inner casing diameter. This variation in EH results in large discrepancies in calculated perforation friction. The results—fracture stimulations conducted outside of design—cause poor cluster stimulation and potential screenout. GR Energy Services recommends the use of StrykeZone XACT* charges, which create an ideal hole size with little variation regardless of the position of the perforating gun.

With StrykeZone XACT charge technology, you can achieve improved fracture placement with uniform distribution of treating fluids and greater production from increased cluster stimulation. Using StrykeZone XACT charge technology, along with the GR ZipFire* high-efficiency gun system, helps deliver record-setting performance that lowers completion time, reduces risk, decreases operating cost and maximizes total available pumping time.



Entry holes created by standard deep-penetrating charges.

Entry holes created by StrykeZone XACT charges.

Standard deep-penetrating charges create highly variable entry hole sizes that can cause a significant drop in near-wellbore pressure. StrykeZone XACT charges create consistent entry hole sizes, which produce overall improved stimulation results.

StrykeZone XACT Charge Performance

Type	Part Number	Charge	Gun OD (in.)	Test Casing Size (P-110)	Avg. EH Diameter (in.)	Avg. Penetration (in.)	Standard Deviation (%)
XACT	GR-3321-XACT-S	StrykeZone 3321 XACT.S, RDX	3.375	5.5 in., 20 lbm/ft	0.33	25.4	4.6
	GR-3321-XACT-M	StrykeZone 3321 XACT.M, RDX	3.375	5.5 in., 20 lbm/ft	0.38	23.1	1.4
	GR-3321-XACT-L	StrykeZone 3321 XACT.L, RDX	3.375	5.5 in., 20 lbm/ft	0.44	22.3	3.1
	GR-3321-XACT-L	StrykeZone 3321 XACT.L, RDX	3.125	5.5 in., 23 lbm/ft	0.42	22.5	4.4
	GR-2715-XACT-M	StrykeZone 2715 XACT.M, RDX	2.75	4.5 in., 15 lbm/ft	0.37	21.8	3.5

*Mark of GR Energy Services