



FracTune™

UNIFORM HOLE SIZE CHARGE

FracTune charges have been designed and qualified for conventional and unconventional reservoirs that require hydraulic fracture stimulation. The charges generate an engineered jet that results in uniform casing hole entry diameter and shape independent of the gun phasing, shot density and position within the casing.

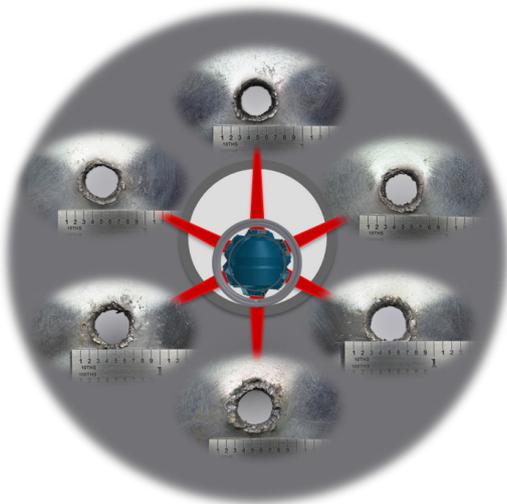
This provides for equal distribution of fracture treating pressures, fracture stimulation fluids and proppant and results in a symmetrical and uniform generation of fractures around the wellbore casing and within the target reservoir. Thus previously bypassed and non-treated parts of the reservoir rock are now connected to the wellbore and allow contribution to the hydrocarbon production and add to the total reserves recovered.

Unintended screen outs during fracture operations result in delays and costly cleanout and disposal steps. The precise and accurate FracTune entry holes minimize the potential for proppant bridging, which most often occurs on reduced diameter perforations.

BETTER FRAC PERFORMANCE AND EFFICIENCY

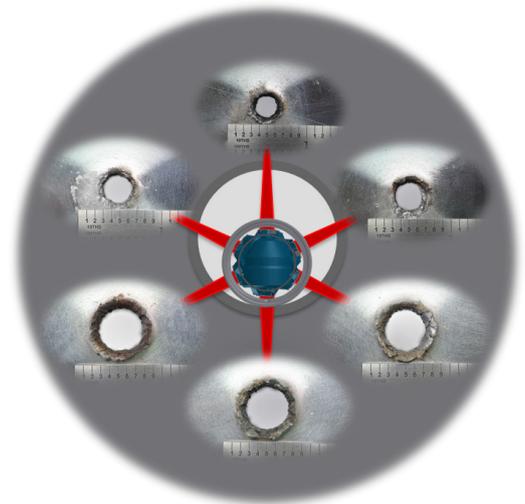
- Reduces bridging and screenouts during fracture treatment
- Reduces variations in flow and pressure across the perforations
- Uniform proppant placement across the perforations
- Uniform distribution of treating fluid and pressure across the perforations
- Faster ramp up to treating pressure

**< 4% DEVIATION
IN CASING
entry hole diameter**
connect with more reservoir and increase total EUR



FRACTUNE™

The total area to open flow is equally distributed across all perforations. FracTune has less than 4% deviation in casing entry hole diameter, independent of phasing, shot density and position in the well.

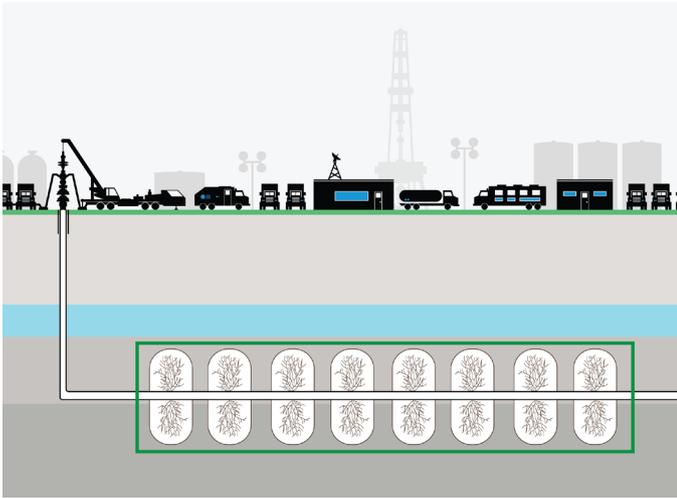


STANDARD DP

~80% of the total area open to casing comes only from the perforations on the low side of the casing due to large variations in entry hole diameter.

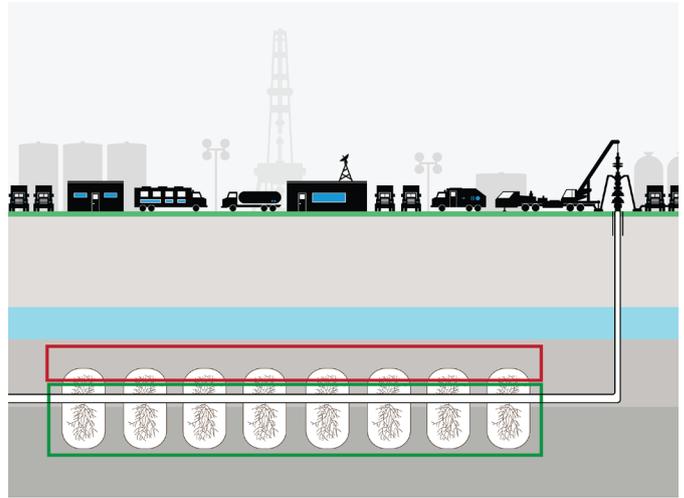
FRACTUNE™ SHAPED CHARGE

Uniform reservoir contact made around the wellbore covering the pay zone.



STANDARD DP SHAPED CHARGE

Reservoir contact predominantly made in the lower portion of the pay zone.



With conventional shaped charge technology (diagram upper right) casing entry hole size variation leads to non-uniform frac clusters. This frequently results in inadequate access to the upper portion of the pay zone and reduced production potential.

FracTune shaped charges lower the risk of non-productive clusters and stages. Uniform casing entry holes ensure the designed treatment pressure, fluid flow and proppant density is achieved at each perforation within the stage. This creates the greatest certainty that frac clusters will form as designed and well production is optimized.



22.7G FRACTUNE™ CHARGE

Uniform hole size charge

FRACTUNE™ PERFORMANCE SUMMARY

CHARGE TYPE	GUN OD	EXPLOSIVES TYPE	EXPLOSIVES WEIGHT	EHD (in.)	TTP (in.)	CASING SPEC	EHD VARIATION
FracTune DP	2-3/4"	RDX	15.0g	0.33	25.69	4-1/2", 13.5#, P110	6.1%
FracTune DP	3-1/8"	RDX	22.7g	0.45	30.16	4-1/2", 11.6#, L-80	3.8%
FracTune GH	3-1/8"	RDX	22.7g	0.50	26.62	4-1/2", 11.6#, L-80	6.9%
FracTune DP	3-1/8"	RDX	22.7g	0.38	N/A	5-1/2", 23#, P-110	2.5%
FracTune GH	3-1/8"	RDX	22.7g	0.42	N/A	5-1/2", 23#, P-110	5.7%
FracTune DP30	3-1/8"	RDX	22.7g	0.31	30.4	5-1/2", 23#, P-110	8.5%
FracTune DP40	3-1/8"	RDX	22.7g	0.40	22.1	5-1/2", 23#, p-110	4.85%

Available for DynaStage and Conventional gun systems. Qualified with industry standard casing sizes, weight and grades.