

DS Trinity™ Perforating Gun System

Increase Well Productivity with a Single-Plane Fracturing System

Fully Factory-Assembled, Performance-Assured™



When completing your hydraulic fracturing operation, two important factors can drive efficiency and well productivity. The first is maximizing the number of guns per stage, packing the most perforation clusters into the shortest length. Second, the system must be able to provide high-quality wellbore fractures that can ease proppant placement and maximize formation drainage.

The patent-pending DynaEnergetics DS Trinity™ system offers a compact fracturing solution that can produce more perforations per stage than conventional guns. The three-plane solution uses similar manufacturing processes as the rest of the DynaStage family of fully factory-assembled, performance-assured™ perforating systems. This means it is a high-quality gun that is easy to arm and test while delivering reliable downhole performance. The charge orientation results in equal and uniform entry-hole diameters (EHD), which is essential in achieving predictable perforating results and better fracture propagation.

ENHANCE COMPLETION DESIGNS

The DS Trinity perforating system is up to 3.5 times shorter than conventional perforating guns. Its modular design eliminates the sub adaptor that is typically used to connect adjacent guns in a string. At 7 inches in length (3 ½-inch diameter), the compact system gives completion engineers greater flexibility when designing the fracturing operation, so more guns can be run with tighter perforation clusters. A standard 30-foot lubricator could accommodate up to 50 and 55 DS Trinity guns, depending on other tools and accessories used in the string makeup, such as the setting tool and plug, cable head, release tool, and weight bars. Using the DS Trinity system with fewer gun modules can reduce the required height of rig-up cranes and pressure-control equipment, driving down well completion costs, while simultaneously enhancing handling and safety.

INCREASES DESIGN FLEXIBILITY

The length-optimized system is easy to configure and flexible in design. No additional subs are required, making it the shortest system available today.

DECREASES NONPRODUCTIVE TIME

DS Trinity is length-optimized, allowing for more manageable sections and easier rig-up. It's designed to get to the bottom fast without hanging up, reducing pumping time, or requiring you to work the string.

ENABLES PARALLEL RIG OPERATIONS

The intrinsically safe design enables parallel wellsite operations without depth restrictions or radio silence.

MAXIMIZES PERFORMANCE

The truly modular design allows each component to be fully tested, along with the entire carrier system, before running in hole.

EXTENDS YOUR OPERATIONS AREA

The DS Trinity system can be delivered directly to the wellsite, eliminating the need for gun assembly personnel and local infrastructure.



IMPROVE FRACTURING RESULTS

Research has shown that perforating in a single plane can reduce formation breakdown pressures by up to 25%*. Single-plane perforation geometry and equal EHD are the most important factors in determining how a formation fractures and behaves. Single-plane perforations show a tendency to link up radially, improving near-wellbore fracture geometry and enhancing overall well productivity. The DS Trinity system's tight, three-in-a-plane perforation geometry aids in creating a uniform fracture plane, which can improve wellbore productivity. The system utilizes three radially spaced, fracture-optimized charges to create uniform perforations and fracture geometry, regardless of gun position in the wellbore.

MAXIMIZE WELLSITE EFFICIENCY

The system is fully factory-assembled, and quality controlled at DynaEnergetics facilities to streamline wellsite activities and assure performance. It is also rigorously inspected, and function-tested before it is delivered to the wellsite to shorten rig-up and testing time.

Arming the DS Trinity system in the field is as easy as installing a battery in a flashlight. In addition to reducing lost time on the surface, the DynaEnergetics' intrinsically safe plug-and-go detonator technology eliminates the possibility of an unintended detonation while arming.

MAXIMIZE PERFORATION CHARGES

Standard shaped-charge technology has traditionally required the perforating gun to be centralized in the wellbore to achieve uniform and equal EHD. This is not always practical, so the guns are often positioned against the low side of the casing in horizontal wellbores. Shots must travel through varying amounts of wellbore fluid, producing different EHDs for each shot.

By combining the DS Trinity system with DynaEnergetics FracTune™ and HaloFrac™ frac-optimized charges, the effect of wellbore fluids is negated when perforating. This combination delivers uniform EHDs, allowing equal treatment pressure for all perforations, and equal volumes of treating fluid and proppant to pass through. Depending on charge selection, a single DS Trinity system enables perforating performance equivalent flow area to traditional four- or five-shot guns.

REDUCE EQUIPMENT COSTS

Single-plane perforating results in lower-than-average treating pressures while performing fracturing operations. This can mean big savings on equipment by optimizing pumping capacity, lowering fuel costs, and reducing wear and tear. In formations where breakdown pressures exceed the design rating of available fracturing equipment, single-plane perforating can lower the risk of a failed frac stage, reduce the need for additional perforations or sand jetting, and protect against premature screenouts.

The **DS Trinity** system marks a whole new era in perforating solutions. It improves your surface and downhole operation, is easier to test, safer to use, and more efficient to operate. Contact your local DynaEnergetics sales representative to learn more about reducing costs and optimizing production on your next perforating job. For more information, visit www.dynastage.com.

* Ding, Y., Falser, S., Fu, H., Lu, Y., Mo, W., Weng, D., Wong, S. (2016, June 26–29). Reducing Breakdown Pressure and Fracture Tortuosity by In-Plane Perforations and Cyclic Pressure Ramping. American Rock Mechanics Association.