



# Packers Plus® StageFRAC™

## Multi-Stage Fracturing Systems

### Introduction

Multi-stage fracturing of horizontal wells may be the key to unlocking many of the world's remaining oil and gas reserves. As depletion of the world's primary producing fields continues at a rapid pace, and demand continues to grow, oil and gas producers around the world are searching for ways to economically access potentially massive reserves left behind in tight or geologically difficult formations.

By combining the ability to both drill horizontally and use multi-stage fracturing, the ability to access and produce large segments of reservoir rock has unlocked reserves in both conventional and unconventional reservoirs. The solution which has made this process economical has been the advent of multi-stage fracturing completion systems for open hole horizontal wells, such as Packers Plus' StageFRAC™, which allows for stimulation of the entire horizontal in a single, continuous operation, reducing the time of completion and lowering costs.

### The Solution

StageFRAC™ systems are designed for open and cased hole stimulation in sandstone, carbonate, shale, coal, naturally fractured formations, and in critical sour and high pressure/high temperature (HPHT) environments. This innovative, field-proven system greatly increases the effectiveness of fracturing operations by mechanically isolating selective intervals designated for treatment producing a distributed placement of stimulation fluids throughout the desired area.

StageFRAC™ systems allow for full fracture coverage of the wellbore and improved production inflow. StageFRAC™ systems are designed to reduce your well costs, increase production and maximize your profits.

### Applications

- Sandstone, carbonate, shale and coal formations
- Open and cased hole horizontal and vertical wells
- Critical sour and HPHT environments
- Extended reach horizontal wells

### Benefits/Features

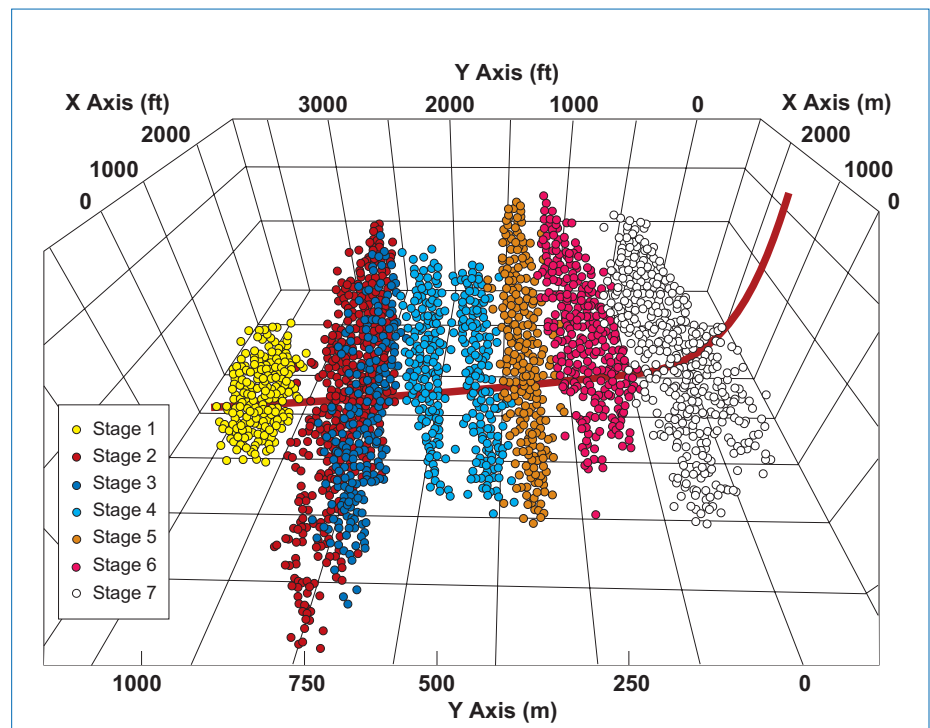
- Simplified pumping operations
- Improved production results
- Reduced completion time
- Improved access to natural fractures
- Full coverage in extended reach horizontal well applications
- Custom stimulation of the entire wellbore
- Mechanical isolation with field-proven RockSEAL® packers

### Solution Details

#### Performance

Microseismic fracture mapping provides an image of fractures by detecting microseisms or micro-earthquakes that are triggered by shear slippage on bedding planes or natural fractures adjacent to the hydraulic fracture. Fracture mapping graphs have proven out key features of the StageFRAC™ Multi-Stage Fracturing System which include:

- Fracture initiation between packers proving mechanical isolation
- Full coverage of the wellbore with specifically located stimulation



Microseismic of a 7-stage StageFRAC™ completion showing isolation of stimulation intervals.



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### RockSEAL® II

The RockSEAL® II packer is a dual-element, solid-body packer that combines the sealing strength of a mechanical element with the setting force of a dual-piston cylinder and mechanical body-lock system. The packer has a specially designed elastomer with the largest possible cross section to provide excellent expansion ratios for setting in oversized holes. The packer is designed with anti-preset features that allow the tool to be pushed through tight spots in the well without presetting or shearing the packer.

### FracPORT™

The FracPORT™ is a ball-actuated, hydraulically-activated flow port. The FracPORT™ is run between two RockSEAL® II packers to allow specific zones of the wellbore to be isolated and selectively fractured. Multiple FracPORTs™ can be run, with the biggest ball seat at the top of the liner. The FracPORT™ can be drilled out to full inner diameter and can be closed or re-opened with or without the ball seat in place for future operations, such as water shut-off.

### Advanced Systems

Packers Plus also offers systems specifically designed for acid stimulation (RapidSTIM™), high-density multi-stage fracturing (StageFRAC™ HD), and for more extreme HPHT conditions (StageFRAC™ Titanium™ XV).

### About Packers Plus®

Packers Plus® is a completions technology company focused on the needs of the oil and gas industry. Packers Plus is unlike any other completions company, having pioneered the revolutionary multi-stage fracturing technology. Packers Plus is unlike any other completions company, having pioneered the revolutionary multi-stage fracturing technology. This technology has changed the way oil and gas companies work in tight rock formations and has re-energized many shale gas and sandstone reservoirs.

Ingenuity in product design, combined with high-quality service and a clear understanding of the needs of oil and gas producers sets us apart. Staffed with some of the industry's best completions personnel, we can engineer and execute the most challenging completions.

Over the years, Packers Plus has remained resolutely focused on the needs of producers requiring technology solutions in marginal reservoirs. Our people have developed a well-earned reputation as problem solvers.

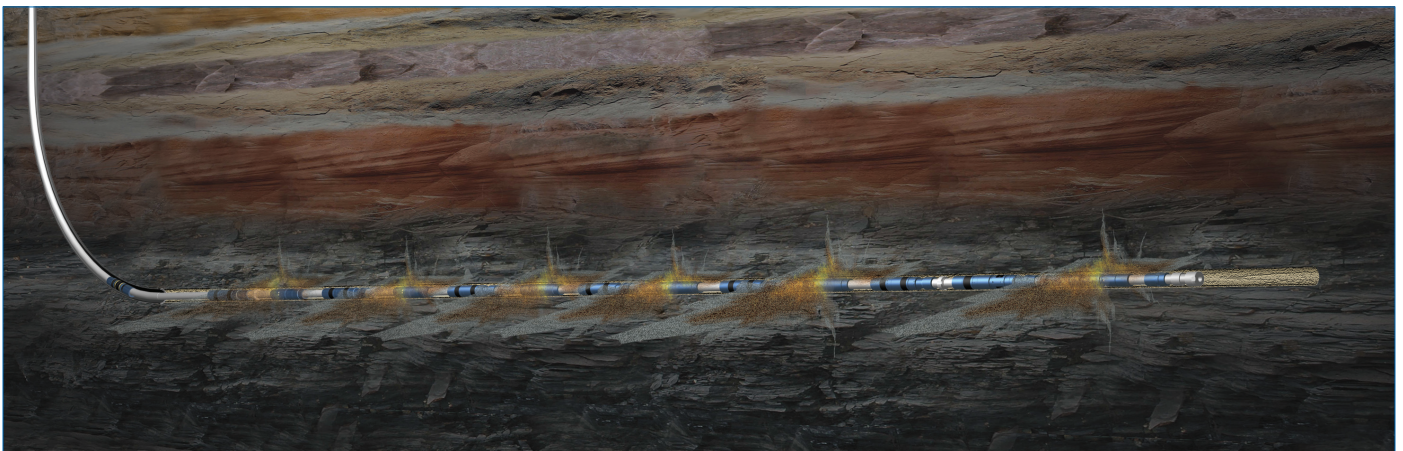
*"We took our horizontal well to 11 service companies, and Packers Plus was the only company that knew how to design a completion for it." – Quote from a customer.*

This is a reputation that we have worked hard to develop and maintain with consistency and professionalism.

The company values operational excellence and innovation. We have two Technology Centers that focus on training, education and innovation. This focus has resulted in an ongoing flow of new tools and products being invented, prototyped and tested for the expanding needs of the multi-stage fracturing arena.

As a result of our success, we are growing in all areas of the globe. We have corporate offices in Calgary, Alberta; Houston, Texas; and Nicosia, Cyprus. Through these corporate offices, we have expanded operations throughout North America and into the Middle East, West Africa, China, Europe, Mexico, and Argentina.

For more information about Packers Plus, please contact us at [info@packersplus.com](mailto:info@packersplus.com).



A 6-stage horizontal, open hole StageFRAC™ system.

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