

# Tartan Provides Reliable and Efficient Completion of Deepest Stages in Hybrid Extended Reach Horizontals

## OBJECTIVE

In most North American oil and gas plays, the exploitation trend is to drill longer horizontal wells and stimulate with more stages. Completion methods requiring coiled tubing operations, such as cemented sleeves and plug-and-perf, are unable to effectively stimulate stages closer to the toe due to the target depths. As a result, many operators are looking for a more efficient and reliable completion technology to complete the deepest, most challenging zones of their extended-reach horizontals.

## SOLUTION

Tartan's patented MultiFrac™ limited entry and EnerFrac™ single entry ball-drop systems can be run in hybrid completions to enable effective stimulation of toe stages – from the first two to the first mile.

The sleeves feature patent-pending BurstPoint™ ports that keep the system internals completely closed during installation and the cementing process. This eliminates the risk of cement invasion mitigating issues during stimulation operations.

Additionally, these systems are designed with torque-through threads to facilitate installation and improve cementing operations via rotation and reciprocation (see table).

Tool	Size in. (mm)	Torque Through lbf (daN)
<b>MultiFrac / EnerFrac Sleeve</b>	4.5 (114.3) 5.5 (139.7)	13,340 (5,934) 22,670 (10,084)
<b>Cement Initiation Sub (CIS)</b>	4.5 (114.3) 5.5 (139.7)	25,000 (11,120) 25,000 (11,120)

The MultiFrac and EnerFrac hydro-mechanical sleeves are activated with standard or dissolvable balls and enable stimulation of clusters or individual stages, respectively. Once shifted by an actuation ball, liner pressure is increased to fully open the BurstPoint ports to achieve communication with the formation.

## RESULTS

Tartan MultiFrac and EnerFrac systems have been successfully run as hybrid completions in a variety of plays throughout North America (see run history). These systems enable higher rate treatments than coiled tubing methods – particularly at the toe – resulting in an enhanced fracture network and increased production.

Run History		
Formations	Bakken, Berea, Cleveland, Eagle Ford Niobrara, Marcellus, Mowry, Permian, Utica	
	Avg.	Max.
<b>Sleeves/Well</b>	37	90
<b>MD ft (m)</b>	17,045 (5,195)	24,670 (7,520)
<b>TVD ft (m)</b>	8,775 (2,675)	14,320 (4,365)
<b>Lateral Length ft (m)</b>	8,265 (2,520)	11,945 (3,640)

## ABOUT TARTAN COMPLETIONS

Tartan Completions is a multifaceted energy services company that engineers and manufactures innovative, customized multistage stimulation solutions and provides completions milling services globally. For over 20 years, Tartan has followed the philosophy of engineering our products with simplicity, reliability, flexibility and performance in mind, providing outstanding field service and value to our customers. From design to installation, we continue to meet the high expectations of our customers.

Please contact Tartan Completions for any of your downhole completion system and milling requirements.

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