

## Bulldog™ Frac Single Open (SO) Sleeve

Bulldog Frac SO sleeve was developed from our successful North Sea i-Valve technology featuring a mechanical shift single open sleeve specifically designed for horizontal multistage land applications. The Bulldog Frac sleeve is activated using proprietary Bulldog Frac BHA, which allows operators to locate, shift open, isolate each stage and stimulate with the help of a multi-set packer. Pumping down the coiled tubing annulus permits higher pumping rates and allows for better understanding of fracture geometry and dynamics.

The Bulldog Frac sleeve is compact, light and easier to handle which improves make-up times and reduces safety risks. Because it is a mere 24 in. (610 mm) in length, no pup joints are required. The design of the Bulldog Frac sleeve is fullbore and includes a large flow area of 10.5 in<sup>2</sup> or a 45% increase over similar products available in the industry. This means operators can remove choke points for their production while maximizing stimulation flow rates.

### Features

- i-Valve locating and shifting profile
- i-Frac CEM seal stack design
- Pinpoint fracture initiation in cemented applications
- Full bore body design
- Each sleeve provides accurate depth location during shifting operations
- Compact, lightweight and robust
- Fully compatible with cemented and open hole completions

### Benefits

- Increased pumping efficiency and rate
- No stage count limitations
- No ID restriction to choke production
- Safer, simpler and more efficient handling on the rig floor
- No handling pup joints required

### Applications

- Acid or proppant stimulations
- Completions requiring reliable, single point of entry
- High stage count stimulation designs
- Formations with a high frequency of screenouts



## Technical Data

Bulldog Frac	OD in. (mm)	ID in. (mm)	Length <sup>1</sup> in. (mm)	Weight lbs (kg)	Working Pressure psi (kPa)	Tensile Strength lbf (kN)	Temperature °F (°C)	Threads <sup>2</sup>
450	5.5 (139.70)	3.89 (98.81)	24.0 (610)	58 (26)	10,000 (69,000)	338,000 (1,503)	350 (177)	LTC Standard

<sup>1</sup> Lengths may vary depending on end sub threading

<sup>2</sup> Premium connections available