

# Voyager BD Multi-Open/Close (MOC) Frac Sleeve

The Voyager™ BD MOC frac sleeve is a ball-drop activated frac sleeve for open-hole completions. The Voyager frac system was specifically designed to remove any components that limit the performance of the end user's well. For each casing weight, the sleeves, packers, and other equipment have been designed to exceed the casing specifications outlined in API 5CT. Treatments can be performed as "open-frac-close" or "open-frac". The multi-open-close feature permits opening or closing sleeves after millout of the ball seat should well conditions dictate.

For each ball pumped from surface, a corresponding sleeve downhole is opened, allowing communication between the casing ID and the formation of interest. The stimulation operation is continuous with balls of increasing OD being pumped from surface as the operation works towards the heel of the wellbore.



## Features

- Sleeves are designed to API 5CT ratings for casing
- Ball-drop activated
- Drillable cast iron ball seats for optimal drill out
- Ability to be closed and opened multiple times after millout of ball seat
- Compatible with dissolvable ball technology – frac balls that degrade over a calculated time period in the presence of temperature and fluid all production operations to begin with no well intervention

## Benefits

- Efficient ball-drop completion that allows well production immediately after stimulation
- Can be milled out in the open or closed positions
- When combined with dissolvable balls, the sleeves can begin production with no further intervention required
- New ball technologies allow for high stage count applications
- No handling pup joints required

## Applications

- Acid or proppant stimulations
- Completions requiring reliable, single point of entry
- High stage count designs

## Technical data

Casing size in. (mm)	Grade ksi	Casing weight lb/ft (kg/m)	Length in. (mm)	OD in. (mm)	ID* in. (mm)	Burst rating psi (MPa)	Collapse rating psi (MPa)	Tensile rating† lbf (kN)	Temp. rating °F (°C)	Flow area in² (cm²)
4.500 (114.3)	125	15.1 (22.47)	33.8 (858.52)	5.750 (146.05)	3.750 (95.25)	15,000 (103.42)	15,000 (103.42)	428,250 (1,904.95)	350 (176.67)	10.8 (69.9)
5.500 (139.7)	110	20.0 (293.76)	44.71 (1,135.63)	7.000 (177.8)	4.716 (119.79)	10,000 (68.95)	10,000 (68.95)	730,840 (3,250.94)	350 (176.67)	17.96 (115.9)

\* ID after ball seat millout

† Tensile rating excluding end connections

Note: Length will vary with end connection selected.