

Tool Specification

Voyager BD Single Open Frac Sleeve

The Voyager™ BD Single Open (SO) is a ball-drop activated frac sleeve for open-hole completions. The Voyager BD SO 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.

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

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

Size in. (mm)	Grade	Casing weight lb/ft (kg/m)	Max. OD in. (mm)	Body ID in. (mm)	Length in. (mm)	Burst rating psi (MPa)	Collapse rating psi (MPa)	Tensile rating lbf (KN)	Temperature rating °F (°C)	Flow area in. ² (cm ²)
4.500 (114.3)	L80	11.60 - 13.5 (17.26 - 20.09)	5.875 (149.2)	3.930 (99.8)	28.00 (711.2)	9,020 (62,200)	8,540 (58,900)	307,000 (136,550)	350 (177)	12.0 (77.4)
4.500 (114.3)	P110	11.60 - 13.5 (17.26 - 20.10)	5.875 (149.2)	3.930 (99.8)	28.00 (711.2)	12,460 (85,900)	10,690 (73,700)	422,000 (187,700)	350 (177)	12.0 (77.4)
4.500 (114.3)	L80	13.50 - 15.1 (20.09 - 22.47)	5.875 (149.2)	3.826 (97.18)	28.00 (711.2)	10,480 (72,300)	11,080 (76,400)	353,000 (157,000)	350 (177)	12.0 (77.4)
4.500 (114.3)	P110	13.50 - 15.1 (20.09 - 22.47)	5.875 (149.2)	3.826 (97.18)	28.00 (711.2)	14,420 (99,400)	14,340 (98,900)	485,000 (215,750)	350 (177)	12.0 (77.4)
5.500 (139.7)	P110	20.0 - 23.0 (29.76 - 34.23)	7.125 (180.98)	4.716 (119.79)	29.26 (743.20)	14,530 (100,200)	13,580 (93,600)	643,000 (286,000)	350 (177)	16.0 (103.2)

Notes:

- Lengths may vary with end sub threading.
- API LTC and BTC threads are standard. Other connections available upon request.
- API L-80 and P-110 are standard. Other material grades available upon request.
- Body ratings are exclusive of end connections.