

# i-Close BD Circulating Sleeve

The i-Close™ BD (ball-drop) circulation sleeve is a gas-tight ball-activated sleeve installed as part of an upper completion.

Circulating different fluids in the annulus is achieved by dropping a ball, which then opens the sleeve. After circulating the required fluids in the annulus, the sleeve is closed by dropping a second ball. The ball seats can be drilled out for improved internal flow rates and allow for intervention or completion tools to run through the sleeve.

The sleeve uses our proprietary gas-tight sealing system, which has been successfully tested to 15,000 psi at 230°F (110°C).

The i-Close BD is also capable of being deployed in both upper and lower completion strings where an injection or production point is required and where closing the sleeve without intervention is desirable.



## Features and benefits

- Fully qualified to 15,000 psi in a zero-leak gas test
- Can be run as part of a variety of completion systems
- Large flow area does not restrict circulation operation
- Allows circulation to be performed without intervention
- Millable cast-iron ball seats

## Applications

- Upper completion circulation operations
- Wells that require a gas tight completion with the ability to perform temporary circulation with the annulus

Size in. (mm)	Max OD in. (mm)	ID after millout in. (mm)	Length in. (mm)	Burt pressure <sup>1</sup> psi (MPa)	Collapse <sup>1</sup> pressure psi (MPa)	Temperature rating °F (°C)
4.500 (114.30)	5.825 (148.0)	3.845 (97.7)	78.7 (1,999)	15,000 (103)	15,000 (103)	350(120)