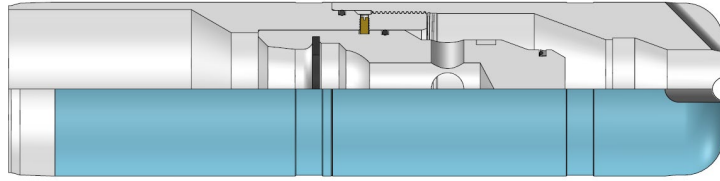


# Circulation Bull Nose



The Standard Bull Nose Shoe (BNS) is a tool that is installed on the bottom of a tubular string to eliminate any solids, liquids or gases from entering the string. The BNS allows the tubular string to contain pressure for injection and production purposes. The BNS also acts as a guide when running tubular strings into a well.

The Circulating Bull Nose (CBN) is a type of BNS that offers the same features that a standard BNS offers. The CBN is also a type of BNS that allows circulation through the BNS, but later can be closed off. The CBN can be designed with either side through ports or end through ports. Some are designed to have multiple open/close functions, while some are designed to function only once. When opened, the CBN will allow fluid flows in either direction. When closed, it will incorporate the same characteristics as the casing it is attached to.

The CBN is installed when a liner must be opened to circulate drilling fluid from a wellbore, and then closed prior to a steam injection phase. The CBN are also installed when Removable Nozzle Plugs (RNP) like Melt Out Plugs (MOT) are installed in Flow Control Devices (FCD) and require a means to circulate the string during installation. The CBN can also be used to do a sand cleanout trip while installing the liner into the well. The face of the CDN can also be equipped with cutting materials to assist in casing installation.

## APPLICATIONS

- All vertical and horizontal wells.
- Thermal and conventional wells.
- Pressure testing.
- Sand Control.
- Casing string circulation

## FEATURES

- Ability to open or close the Bull Nose for through flow.
- Ability to function the CBN with other tools residing higher up in the string.
- Ball Drop functionality.
- Cutting face to assist in casing installation.

## BENEFITS

- The ability to circulate or exchange down hole fluids from the well bore with a liner that will further require a complete bottom casing seal.
- Can conduct a sand cleanout trip during the installation of the liner.



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