**Dril-Quip’s Vertical Tree**

**Offshore, Time is Money.**

Dril-Quip’s SingleBore™ Completion System is a time-saving alternative to expensive traditional subsea completion system designs.

The SingleBore Completion System eliminates the need to run and retrieve a wireline plug to open and close the annulus. It employs these unique components:

- **Dril-Quip’s patented annulus valve, the SB-Valve™**
- **SingleBore Tubing Hanger System**
- **SingleBore Subsea Tree**

The performance and reliability of the SingleBore Completion System and its components are backed by a team of experienced engineering, field service, manufacturing and management specialists.
Completion System Alternative

**Unique Design = Less Cost**

The unique design allows the SingleBore Tubing Hanger, SingleBore Tree and Tree Cap to be run on drill pipe or tubing, which lowers cost in two ways:

- Simplifies or eliminates many traditional components; completion riser, multiple bore riser spiders and complex lower riser packages are not required
- Compact envelope dimensions and simpler equipment offer maximum rig selection flexibility and make installation and operation easier and faster

**Safe and Dependable**

The SingleBore Completion System offers all the safety features of the traditional dual bore completion system.

- Design allows for cleaning subsurface safety valves (SSSV), chemical injection and electric stabs before making tree connection
- Dril-Quip’s exclusive field-proven tubing hanger sealing system is metal-to-metal
- The annulus SB-Valve is field proven
- The SingleBore Tubing Hanger and SingleBore Tree components are field proven

**Remote Operated Vehicle (ROV) Compatibility**

The SingleBore Completion System is designed for use with ROVs.

- All valves can have ROV overrides and visual position indicators
- Unique, low-cost ROV-assisted flowline connection system is available

**Dril-Quip – Your Single-Source Supplier**

From a single wellhead to multiple offshore development projects, Dril-Quip has the expertise, facilities and technology to get the job done. Dril-Quip offers a full line of drilling and completion equipment, from the tubing hanger, tree and running tools through the workover riser system and the hydraulic workover control system.

For more information, contact a Dril-Quip representative today.
THE SINGLEBORE TUBING HANGER SYSTEM WITH SB-VALVE PROVIDES THE FOLLOWING BENEFITS:

- The SingleBore Tubing Hanger allows downhole safety valve control, injection line connections, downhole temperature and pressure monitoring, and a submersible pump power cable, if required.
- The tubing hanger is available for H₂S and severe service.
- Tubing sizes up to 7" can be accommodated while maintaining a 2" annulus access.
- Dril-Quip’s patented SB-Valve replaces annulus plug profile in the tubing hanger and the necessity for dual bore running string.
- The SB-Valve is pressure balanced so that pressure in the annulus will not accidentally open or close the bore.
- The annulus SB-Valve system is testable from above to confirm sealing integrity.

UNIQUE PATENTED SB-VALVE AND ANNULUS ACCESS:

- Allows larger production bore and the addition of downhole equipment.
- Hydraulically opened and closed through the workover control system.
- Replaces the need for a wireline plug in the annulus bore of the tubing hanger.
- Metal-to-metal sealing throughout; of special note are metal-to-metal seals between ball and seat seal, and between seat seal and tubing hanger body.
- Sealing area is hard-banded for long, durable life and reliable sealing performance.
- Resilient seal backup.
- Provides a 2" annulus access.
- Field-proven performance.
Control fluid in Port B starts the piston upward to rotate the annulus ball into the closed position.

Control fluid in Port B shifts the piston up, moving the SB-Valve annulus ball into the closed position and blocking annulus access. Pressure in the annulus will not arbitrarily open the SB-Valve, but instead will assist in sealing the ball against the seat.

Control fluid in Port A provides pressure on the open function and keeps the SB-Valve piston down to allow flow through the annulus bore to the stab sub. Pressure in the annulus will not close the SB-Valve because the SB-Valve is pressure balanced by design.
The SingleBore Tree

The Unique Features of the SingleBore Tree Enable Operators to Save Time and Money

- The SingleBore Tree requires less time for installation and workover than all other tree types
- The SingleBore Tree is more compact, shorter and more cost-effective than an equivalent dual bore or horizontal completion tree
- The workover riser system and surface tree for the SingleBore Tree are simpler and less expensive than systems for traditional dual bore trees
- Since no wireline plug is required for the annulus, vertical access to the annulus is not needed; the only vertical bore through the SingleBore Tree is the production bore
- The design can accommodate tubing diameters in the range of 2 3/8” to 7”; the production bore is normally set off-center to accommodate control line connections
- Since only one vertical bore exists, the SingleBore Tree can be run on tubing or drill pipe with an umbilical; the SingleBore Tree design eliminates the need for an expensive dual bore completion riser system
- Flow through the tree to and from the annulus occurs in a series of connected bores; annular flow from downhole exits from the side of the tree through the annulus master valve; during running or retrieving, or during workover, a 1-inch O.D. high-pressure line run with the workover control umbilical provides access to the annulus
- The SingleBore Tree and Tree Cap Running and Retrieving Tool replace an expensive lower riser package and an emergency disconnect system
- The SingleBore Tree is available for through-tree pigging
- The SingleBore Tree maintains all safety features of a dual bore tree
- The SingleBore Tree body incorporates integral production master and production swab valves and an annulus master valve
* Other designs are available, depending upon customer specifications.