Subsea Tie-Back Systems
Dril-Quip’s Tie-Back-to-Subsea Wellhead Systems connect the subsea wellhead to a surface production vessel for surface completion.

Dril-Quip Tie-Back Systems are available in two basic styles: tie-back to a fixed platform, and tie-back to a floating production platform (TLP or Spar).

All tie-back systems are designed for use with either the Dril-Quip SS-15® or the SS-10 Subsea Wellhead System. Each tie-back system is individually engineered to meet the customer’s specific requirements.

Dril-Quip designs a full line of drilling and production equipment. From the North Sea to the Gulf of Mexico, Dril-Quip’s state-of-the-art equipment, support and service provide a quick, economical advantage to operators worldwide. Contact your nearest Dril-Quip representative for more information on how we can help you realize a greater profit with fewer worries and less downtime.
Headquartered in Houston, Texas, Dril-Quip has manufacturing facilities in the United States, Scotland, Singapore and Brazil. The company also has sales and service offices in numerous locations throughout the world.

All Dril-Quip facilities have a commitment to manufacture and deliver high-quality products and services. The company manufactures essentially all of its products in-house from high-grade steel forgings produced at the company’s forging facility. Computer Numerically Controlled (CNC) machine tools are used for consistent high quality, precision machining and dimensional accuracy. Computer tracking systems schedule and monitor each customer’s order throughout the manufacturing process, ensuring product quality and timely delivery.

The company’s quality management system assures that products are manufactured to customer specifications and applicable industry standards. Dril-Quip quality management system and manufacturing facilities are ISO 9001:2008 certified, licensed to applicable API product specifications and are API Q1 certified.
Dril-Quip’s SS-15 Subsea Tie-Back System represents the latest in tie-back systems technology. This subsea tie-back system provides an easy, reliable means of tying back a subsea wellhead for surface completion. It incorporates an internal locking profile to optimize the operator’s ability to tie back in adverse conditions and decrease platform costs.

Features
- 20” Tie-Back Connector locking profile for:
  - standardization of connector regardless of wellhead locking profile
  - small O.D. profile (saves expense in platform costs)
  - easy stab at high offset and misalignment angles
  - low torque for high bending and tension load capacity
- High preload for high bending and tension load capacity
- Metal-to-metal seals with resilient backup
- High pressure capacity
- Available with annulus monitoring when used with special annulus monitoring casing hanger
- Stab-In Tie-Back Tools minimize rotation and provide for easy make-up
- Easily adapted to accommodate most casing programs
- Engineering analyzed and tested
- Field proven
Because of the dynamic forces imparted to a subsea wellhead from a production vessel that is constantly in motion, the fatigue life of the well equipment becomes an important issue. The Dril-Quip Tie-Back for Floating Production and TLP Systems incorporates some key equipment components:

Features
- DX® Wellhead Connector for high preloaded production riser connection
- Easy stab and make-up at high misalignment angles
- High bending and tension load capacity
- High pressure capacity
- All metal-to-metal seals with resilient backup
- Easily adapted to accommodate most casing and production riser programs
- Computer analyzed and gas tested
- Available with mechanical or hydraulic locking systems
- Tie-back can be pressure-tested
- Stab seal is field-replaceable
- DX Wellhead Gasket can be pre-installed by ROV prior to tie-back for rig time savings
- Dual metal-to-metal sealing profile on Tie-Back Connector gasket
- Field-proven performance
20” Torque Tool
The 20” Torque Tool locks and preloads the 20” Tie-Back Connector into the 18 3/4” Wellhead. Run on drill pipe inside the 20” casing string, the 20” Torque Tool is landed on the landing ring inside the 20” Tie-Back Connector. The drill pipe is then rotated to the right until the three torque keys on the Torque Tool locate their corresponding slots in the actuator ring and engage those slots. The Torque Tool is then rotated to the right approximately eight turns to lock and preload the Tie-Back Connector to the Wellhead.

High-Angle Stab Nose
The High-Angle Stab Nose is run with the 20” Tie-Back Connector and guides it into the 18 3/4” Wellhead. It is equipped with an attachment that provides a 4 1/2” API IF connection down, which will allow entry into the Wellhead with a drill pipe entry stinger. A retrieving profile in the top of the Stab Nose allows the 20” Torque Tool to lock to the Stab Nose when the Tool is landed in the 20” Tie-Back Connector. The High-Angle Stab Nose is retrieved with the Torque Tool.

20” Tie-Back Connector™
The 20” Tie-Back Connector is used to connect the 18 3/4” Subsea Wellhead to the surface with a 20” casing or “barrier” string. The 20” Tie-Back Connector has an H-60 Quik-Thread™ top casing connection and locks to the Wellhead with a split-lock ring. To function the Connector, an actuator ring is rotated to the right with a 20” Torque Tool. This rotation drives a threaded wedge ring down behind the split-lock ring. The 20” Tie-Back Connector provides a resilient seal against the metal ring gasket sealing area on the 18 3/4” Wellhead. The Connector body is designed to accept a Stab Nose, which is used to assist in high-angle stabbing conditions.

Features
- Small O.D. profile for easy passage through the alignment guides
- High preload and high bending
- Pressure capacity exceeds capacity of 20” riser casing
13 3/8” Stab-In Tie-Back Tool
The Stab-In Tie-Back Tool is manufactured with a customer-specified casing thread on one end and a threaded split-lock ring on the other end. This threaded lock ring provides a simple weight-set lock and rotation torque interface between the Tool and the subsea casing hanger. A combination of resilient seals and a metal-to-metal seal is provided at the interface between the Tie-Back Tool and casing hanger I.D.

Features
- Establishes tie-back connection into any of the subsea wellhead casing hangers
- Metal-to-metal and resilient seals for pressure integrity
- I.D. torque slots allow engagement of Torque Tool to energize metal seal if necessary
- Connections — size and type are customer-specified

10 3/4” or 9 5/8” Torque-and-Test Tool
The 10 3/4” Torque-and-Test Tool is equipped with torque keys on the main body, test seals and a 10 3/4” test cup on the bottom of the Tool. The Torque-and-Test Tool imparts final torque to pre-load the 10 3/4” Stab-In Tie-Back Tool to the subsea casing hanger and then tests the seal connection between the Tie-Back Tool and the 10 3/4” casing hanger.

Features
- Establishes tie-back connection into either the 10 3/4” or 9 5/8” subsea casing hanger
- Metal-to-metal seals with resilient back up or pressure integrity
- I.D. torque slots allow engagement of Torque Tool to energize metal seal if necessary
- Connections — size and type are customer-specified

13 3/4” Torque-and-Test Tool
The 13 3/4” Torque-and-Test Tool imparts final torque to preload the 13 3/4” Stab-In Tie-Back Tool to the subsea casing hanger and then test the seals on the Tie-Back Tool. The 13 3/4” Torque-and-Test Tool has three spring-loaded torque keys on the main body. Seals are located on the Tool to isolate the connection between the Stab-In Tie-Back Tool and the casing hanger for testing.

10 3/4” or 9 5/8” Stab-In Tie-Back Tool (Annulus Monitoring)
The 10 3/4” Stab-In Tie-Back Tool has a 10 3/4” customer-specified casing connection in the top and a threaded split-lock ring with a metal-to-metal primary seal and resilient backup seals on the bottom. The threaded lock ring provides a simple weight-set lock and right-hand rotation torque connection between the Tool and the subsea casing hanger. The seal between the Tie-Back Tool and the casing hanger I.D. is a metal-to-metal seal with two O-ring backup seals. The split-lock ring on the Tie-Back Tool locks the Tool to a right-hand modified acme thread located behind the Protective Sleeve in the 10 3/4” Annulus Monitoring Casing Hanger.

Features
- Establishes tie-back connection into either the 10 3/4” or 9 5/8” subsea casing hanger
- Metal-to-metal seals with resilient back up or pressure integrity
- I.D. torque slots allow engagement of Torque Tool to energize metal seal if necessary
- Connections — size and type are customer-specified
**SU-90 Unitized Surface Wellhead**

The SU-90 Unitized Surface Wellhead is fully compatible with all Dril-Quip Tie-Back Systems and incorporates features that have provided service worldwide.

**Features**

- Compact wellhead design saves space
- System flexibility allows adaptation to most casing programs
- Fewer connections reduce possible leak paths and save BOP nipple-up/nipple-down time
- Mandrel-type casing hangers simplify installation process
- Basic system is designed to accommodate various operational requirements:
  - Adjustment in height
  - Adjustment in tension
  - Sealing between wellhead housing and casing strings
  - Annulus access
- The 13 3/8” Wellhead can be run through the 20 3/4” or 21 1/4” BOP stack
- Field-proven dual metal-to-metal sealing with backup resilient seals
- Multiple-purpose installation tools minimize the number of tools required
- Available for standard or H2S service
- Field proven for drilling and production applications
Dril-Quip solid block valves are a popular choice for offshore platform completions, where conserving space and minimizing leak paths are important. Dril-Quip block valves are manufactured to API specifications.

Features
- Offered in a range of sizes, pressure ratings and trims
- Production tree-to-wellhead connection available with flange, clamp hub, Dril-Quip Quik-Clamp or Radial Bolt Connector
- Completion system components offered with standard API connections or customer specified connections
- Component selection consistent with well service specifications

Solid Block-Valve Production Tree

Stacked-Valve Production Tree

Dril-Quip offers surface production trees utilizing a stacked-valve configuration for land or platform completion systems. The systems are designed and assembled to meet customer specifications. Both valves and components are manufactured to meet API specifications.

High-Performance Gate Valves Engineered to Meet Your Size and Pressure Requirements

- Bidirectional flow
- Metal-to-metal sealing
- Gate-to-seat
- Seat-to-body
- Body-to-bonnet
- Metal-to-metal backseat seal
- Two independent backup seals
- Non-rising stem design
- No pressure lock
- Slab and split-gate designs available
- Valve overtorque eliminated
- Forged body and bonnet
- Low maintenance
- Seats are easily field-replaceable
- No special tools required for repairs
- Field-proven performance
SOLUTIONS FOR 10,000 PSI WELLS

SS-10 Subsea Wellhead Tie-Back System

20” Tie-Back Connector

Intermediate Tie-Back Adapter

Annulus Monitoring Casing Hanger

Production Tie-Back Adapter

SS-10C Subsea Wellhead Tie-Back System

20” Tie-Back Connector

“Shallow Water”

Intermediate Tie-Back Adapter

Production Tie-Back Adapter
Dril-Quip offers Template Systems designed for subsea completions or tie-back to platform completion systems. Dril-Quip Subsea Template Systems are available to meet a variety of project specifications, and incorporate the following features:

- Diver and diverless leveling systems
- Centerline-to-centerline centralization
- All template systems can be remote retrievable
- Optional bumper-guide piles
- Custom designed for a specific number of wells and applications
- Field proven

**Unitized Template Systems**

Unitized Template Systems are project-specific and designed to meet customer specifications. Dril-Quip offers bottom-supported and conductor-supported Unitized Subsea Template Systems.

**Spacer Template Systems**

The Dril-Quip Spacer Template incorporates a modular design concept that provides the flexibility to accommodate last-minute changes in the drilling program.