

 Snap-Tite



**Quick Disconnect Couplings**  
Designed for the Offshore Industry

# ***Snap-tite has utilized many features in the design of couplings***

- ▶ Numerous corrosion resistant materials such as 316, 6MO, Nitronic, Monel, Inconel, Hastelloy, Cronifer and Cobalt.
- ▶ NACE MR-01-75 approved material for seawater applications.
- ▶ Various surface coatings to enhance the surface strength for wear resistance to prevent base metal damage.
- ▶ A wide variety of end fittings are available including Autoclave Engineers cone and threaded end connections.
- ▶ An operating pressure range of 29.7 inches of Hg vacuum to 40,000 psi (2760 bar).
- ▶ Various seal configurations utilizing elastomer and polymer seals, including PEEK\*
- ▶ Numerous valve configurations including poppet and dry break in balanced and non-balanced designs.
- ▶ Connect and disconnect under pressure capability.
- ▶ The ability to key the couplings to prevent interconnecting.
- ▶ Diver or ROV mateable.
- ▶ Multi-coupling panel systems with various locking devices, couplings and configurations.
- ▶ The capability to interconnect with competitive couplings and fit into existing panels.
- ▶ Full material and process traceability is available.

*Snap-tite has been designing and manufacturing couplings and multi-coupling panel systems for numerous industries including the offshore industry for more than 25 years. We currently have couplings or multi-coupling panels in various oil and gas producing fields worldwide. Our couplings are used in a variety of areas, from blowout preventers to the control modules and distribution of coolants and hydraulic fluids.*

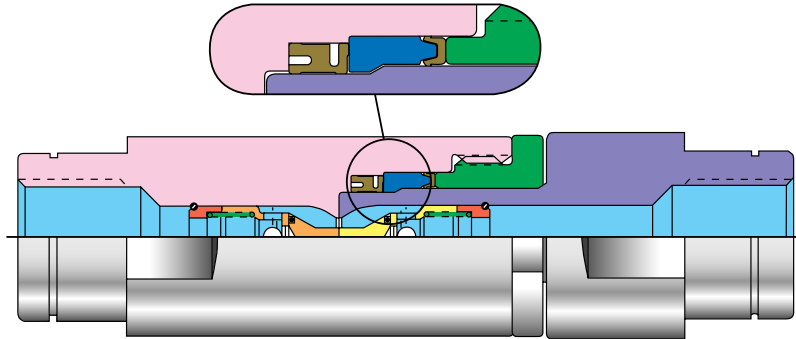
*Founded in 1935, Snap-tite has grown into a corporation producing over 50 product lines in 9 facilities located in the United States and Europe. Snap-tite is widely recognized for it's role in problem solving for the military, aerospace, electronic cooling, mobile equipment, natural gas vehicle and appliance industries to name a few.*

*The Snap-tite Quality Assurance System, exceeding the requirements of MIL-I-45208A, is independently certified to ISO-9001 and meets the requirements of NHB 5300.4 (2B) and CSA Z299. Snap-tite's certified quality program assures customers of documented quality to the above recognized worldwide standards through all areas of contract performance design, development, manufacturing, test and delivery.*

# Designs

There are two commonly used coupling designs for sub-sea applications...

## Poppet Design

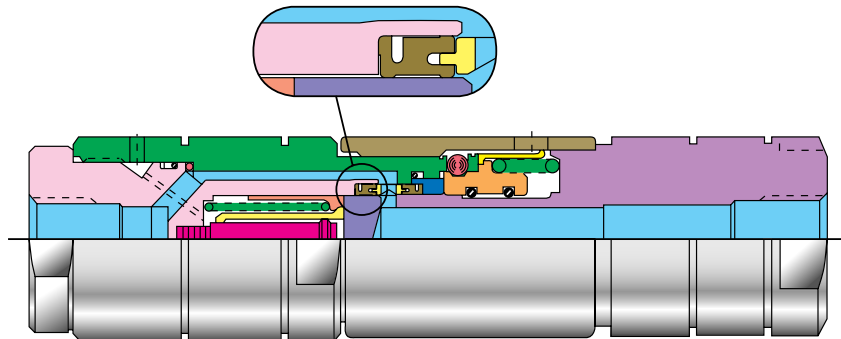


The poppet design coupling is the most commonly used for sub-sea applications. The simple proven design is reliable and economical.

**Features:**

- Compact envelope
- Simple design
- Economical
- Proven design reliability
- Connect and disconnect at full system pressure
- Sizes (C<sub>v</sub>): 1/8" (.24), 1/4" (.66), 3/8" (1.3), 1/2" (2.3)\*

## Balanced Design



The balanced design is Snap-tite's latest design improvement for sub-sea application. The separation force is typically less than 100 pounds (45kg) for each coupling while pressurized internally to 10000 psig (690 bar). Spillage and water ingress are nearly eliminated and the envelope is only slightly larger than that of most commonly used poppet couplings.

**Features:**

- Compact envelope
- Eliminates hydraulic "lock-up"
- Proven design reliability
- Reduced spillage and water ingress
- Lower cost because of reduced clamping force required
- Connect and disconnect at full system pressure
- Sizes (C<sub>v</sub>): 3/8" (1.16), 1/2" (2.9)\*

\*Other sizes can be designed for either type of coupling upon request.

# Seal Material

## **PEEK\* Seal Features & Benefits**

- ▶ Memory (set resistance) exceeds metal seals 20:1  
PEEK seals successfully tested through thousands of connect/disconnect cycles while metal seals tend to fail after relatively few cycles
- ▶ PEEK exceeds chemical and corrosion resistance of nearly all metals in sub-sea applications
- ▶ Comparable performance strength to that of metal seals
- ▶ Excellent abrasion resistance to sand and dirt which would tend to damage sealing surfaces of metal seals in sub-sea conditions.
- ▶ Excellent temperature stability within a temperature range of -40°F to +480°F (-40°C to +249°C)
- ▶ PEEK strength and flexibility eliminates need for secondary elastomer back-up seals
- ▶ Unlike metal seals, PEEK seals are easily field repairable
- ▶ PEEK seals have a proven track record

*Snap-tite's sub-sea couplings utilize elastomer seals or polymer seals manufactured from PEEK. This material is used as a direct replacement for metal seals and eliminates the inherent sealing problems common to metal seals. It exceeds the chemical and corrosion resistance of nearly all of the metals currently used in sub-sea applications. PEEK has been proven by extensive use as a material for pump and valve seals for sub-sea application; chemical processing equipment and other highly corrosive fluids.*

*PEEK has excellent abrasion resistance and temperature stability which is very important for seals used in sub-sea applications. It's memory (set resistance) exceeds that of metal seals by a factor of approximately 20:1 and can tolerate greater abusive use. It's physical strength, flexibility, corrosion and abrasion resistance eliminates the need for metal seals. It has been fully tested for endurance by connecting and disconnecting under water while pressurized to 10,000 psi (690 bar) in excess of 5000 cycles without failure. Testing has been carried out in our own certified laboratory as well as in an independent laboratory and documented in both cases. PEEK seals eliminate the need for elastomer back-up seals and their inherent limitations. Because of their durability and simple design, these PEEK sealed couplings are generally field repairable without the use of special tools or extensive and costly training. Snap-tite's coupling designs are also available with other seal compounds such as Viton and nitrile. All these advantages provide the customer with a highly improved coupling for sub-sea applications.*



*Typical hydraulic control circuit panel incorporating twelve 3/8" BN semi balanced couplings and three 1/2" BN semi balanced couplings (no additional separation force when pressurized). Two plate system utilizing cam-locking devices.*

*Hydraulic control circuit panel utilizing 1/8" HN style panel couplings and cam-locking device.*



*ROV installed stab plate uses PEEK sealed poppet style couplings in sizes 1/4" and 1/2" and includes guide pins to aid in alignment of the panels.*

**Snap-tite currently has couplings or multi-coupling panels in the following fields.**

Total: Nuggets  
 Norske Hydro: Oseberg  
 Shell: Nelson  
 Conoco: Lyell  
 AGIP: Toni  
 AGIP: Thelma  
 Marathon: West Brae  
 Shell: Sarawak  
 Talisman: Ross  
 BP: Schiehallion

British Gas: Morecambe Bay  
 BP: Bruce  
 Kerr McGee: Gryphon  
 Texaco: Strathspey  
 AGIP: Tiffany  
 Marathon: Arnold  
 Saga Petroleum: Snorre A and B  
 BP: South Everest  
 Talisman: Orion  
 Kerr McGee: Leadon

Other coupling designs and accessories are available from Snap-tite. These include mono-coupling (manual operation), diver mateable coupling equipped with handles, complete panel assemblies, protective covers and keyed (polarized) mono coupling to prevent cross media connections.

These couplings are protected by several patents, United States and worldwide.



Thread-to-Connect Coupling

- Fast operation - diver mateable for sub-sea application
- Working pressure to 10000 psig (690 bar)
- Fabricated from corrosion resistant materials for sub-sea application
- Connect and disconnect at full operating pressure



Mono Coupler

- Reduced separation force
- Poppet style valves
- Keyed (polarized) to prevent cross media connection
- Working pressure to 10000 psig (690 bar)
- Fabricated from corrosion resistant materials for sub-sea application



Poppet Coupling

- Available with elastomer or "PEEK" seals
- Working pressure to 10000 psig (690 bar)
- Connect and disconnect at full operating pressure
- Fabricated from corrosion resistant materials for sub-sea applications
- Locking and panel mounting options available



Dry Break Coupling

- Push-to-Connect modified for 3 panel operation
- Dry break design
- Working pressures to 10000 psig (690 bar)
- Flush valves minimize fluid loss and air inclusion
- Superior flow characteristics materials for sub-sea application
- Fabricated from corrosion resistant materials for sub-sea application



Balanced Coupling Design

- Available with elastomer "PEEK" seals
- Working pressures to 10000 psig (690 bar)
- Connect and disconnect at full operating pressure
- Minimum spillage and water ingress
- Fabricated from corrosion resistant materials for sub-sea application
- Locking and panel mounting options available



Multi-Coupling Panel System

- Designed and engineered to specific customer requirements
- Stainless steel panels
- Locking mechanism: Two plate system with single stainless steel cam lock with lock and unlock pin to prevent accidental disconnection
- Fabricated from corrosion resistant materials for sub-sea application



Inline Check Valves

- Soft seat, zero leakage
- Working pressure to 6000 psig (414 bar)
- Variety of end fittings
- Various crack pressures
- Flow rates to 175 US gpm (622 l/min)
- Fabricated from corrosion resistant materials for sub-sea application

**! WARNING !**

FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS AND/OR SYSTEMS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND/OR PROPERTY DAMAGE.

*This document and other information from Snap-tite, Inc., its subsidiaries and authorized distributors, provides product and/or system options for further investigation by users having technical expertise. It is important that you analyze all aspects of your application and review the information concerning the product or system in the current product catalog. Due to the variety of operation conditions and applications for these products or systems, the user, through its own analysis and testing, is solely responsible for making the final selection of the products and systems and assuring that all performance, safety and warning requirements of the application are met.*

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