

# SINGLE-BORE, HIGH-FLOW CONNECTOR (SBHF)

Oceaneering has developed a Single-Bore, High-Flow Connector (SBHF) utilizing the Grayloc® Products metal-to-metal seal technology. Metal-to-metal connectors offer higher seal integrity, leading to a long product life. Other benefits of using the Grayloc® metal-to-metal connector include:

- Utilizes Industry-Standard, Field-Proven Technology
- Lowers Maintenance Costs
- Reduces Fluid Incompatibility Problems



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## Toggle Latch Utilization

The Oceaneering SBHF utilizes the toggle latch connection system to lock the removable portion in a seamless series of actions. The Toggle Latch system engages the drive screw threads topsides when assembled, so the Remotely Operated Vehicle (ROV) is not required to make a threaded connection. The ROV “flies to place” the removable portion of the SBHF, inserting it into the portion affixed to the subsea structure to complete the connection. Once inserted, the toggle latch mechanism rotates the SBHF connector approximately 45 degrees to fully activate the lock.

The combined use of the Grayloc® metal seal and the toggle latch system features a clean, direct fluid path through the SBHF connection, providing decreased pressure drop ( $\Delta p$ ) and ultra-high coefficient of velocity ( $C_v$ ). These factors increase velocity and flow for the highest transfer rate possible.

## Efficient Maintenance and Repair

The Grayloc® metal seal used in the SBHF is located in the removable portion of the connection so it can be easily retrieved if required. The fixed portion is installed permanently on the subsea fixture and is intended to remain subsea for the life of the equipment. If the threads of the primary unlatching system become disabled, a secondary system is utilized that allows the ROV to unlock the latch system so the plate can be extracted.

## Flying Lead and Umbilical Connections

The Removable SBHF halves can be supplied with a welded steel tube stub or API-style connections. Prepped for welding onto the steel tube of the umbilical or connection to an API-style flange, the removable half is fitted with a welded, steel tube stub that is pre-bent, depending on the placement on the hydraulic flying lead.

The Fixed SBHF has an API-6A, 10,000 psi, studded-flange preparation for connection onto tubing within the subsea structure. This half can also be supplied with a weldable tube stub at the Customers' request.

## Technical Specifications

- SBHF is designed and manufactured to the API 6A “Other End Connections” specifications (excludes Temperature Cycling)
- Sizes are available up to API 6A 3 1/16 inch / 10,000 psi
- SBHF can be used with thermoplastic or rigid tubing

