

# Horizontal Flowline Connection System

Enabling fast and reliable pipeline and flowline tie-ins

Our ROV-operated clamp connector engages a patented Oceaneering® Grayloc® metal seal between male and female hubs to provide a robust, field-proven connection solution. The system enables a fast and reliable connection between pipelines and flowlines to new production fields or field expansions.



## FEATURES

**Single drive screw adaptable for ROV operations**

**Provides a field proven, reliable connection**

**Engaged using an industry standard ROV torque tool**

# Horizontal Diverless Connection System

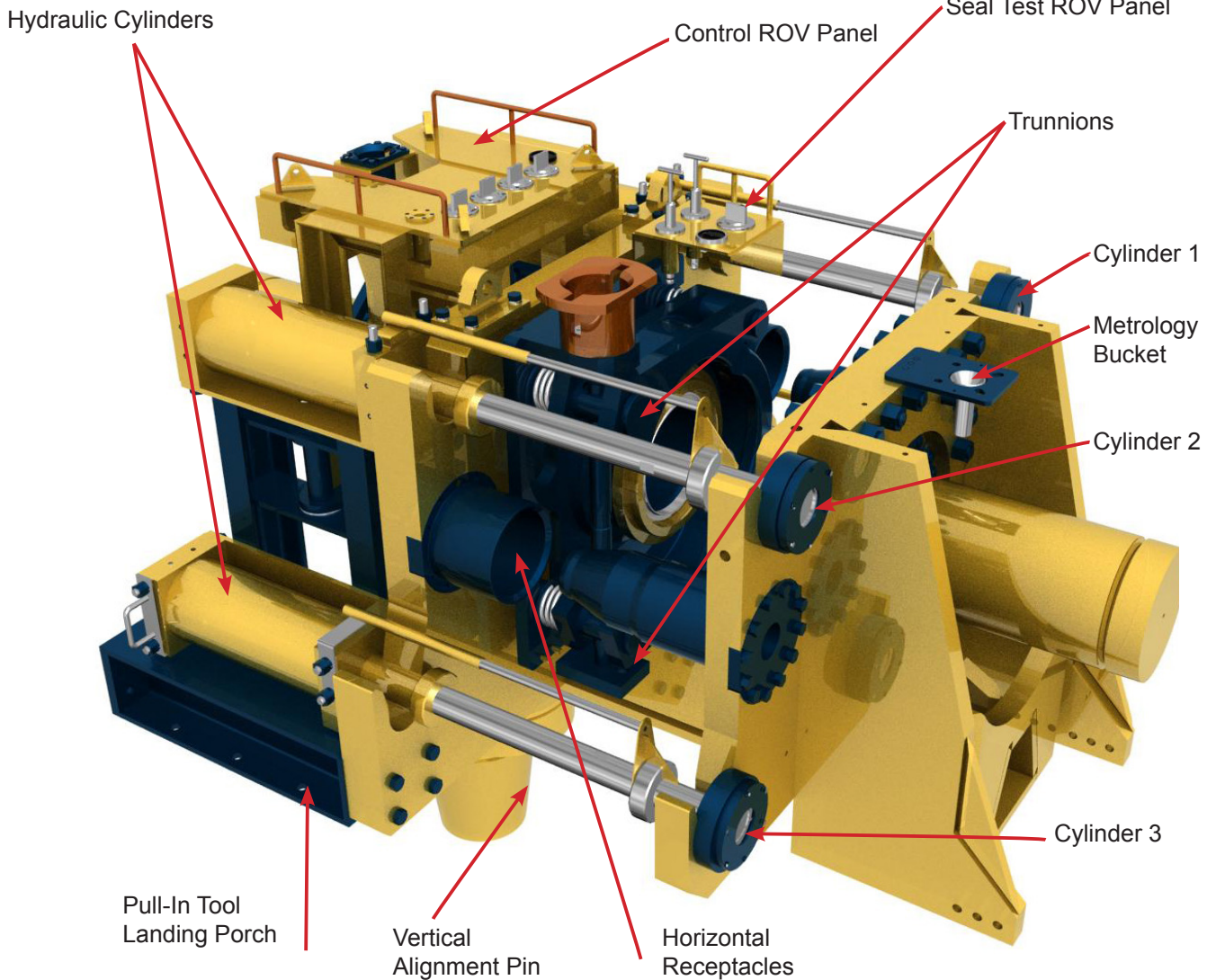
## Enabling fast and reliable pipeline and flowline tie-in Diverless Connection System - Horizontal

The horizontal connection system includes a Grayloc® remote clamp connector with a single drive screw and standard API torque bucket. The clamp connector is engaged by using an industry standard ROV torque tool.

The remote clamp connector is mounted to the female hub assembly, which is located

on the infield jumper. Upon full make up of the clamp connector, an annulus test port is positioned on the backing plate of the connector to enable verification of the clamp's sealing integrity.

A non-integral pull-in system is required for connector installation of and recovery.



### Design Parameters

Nominal Pipe Size (NPS): any API Specification 5L pipe, wall thickness, and grade

Service: Standard (i.e. crude oil, natural gas, hydrocarbons, water, or chemical injection, etc.)

Design Pressure Rating and Applicable Dimensions: ASME, MSS, or API

Design Temperature Range: 25°F to 250°F / -4°C to 121°C

### Material Specifications

Housing                    AISI 4140 forging, quenched and tempered

End cap                    AISI 4140 forging, quenched and tempered

Pistons                    AISI 4140 forging, quenched and tempered

Slips                        AISI 8630 case hardened2

Seals                        Viton B, Buna-N, or other elastomeric compounds can be provided for compatibility with pipeline contents or inhibitors

Studs and nuts            ASTM A193 Gr. B7 studs and ASTM A194 Gr. 2H heavy hex nuts, all XYLAN coated (i.e. PTFE, dark blue)

External coating         Carboline 890 Marine Epoxy Paint System, Safety Yellow Color

### Applicable Design Codes, Standards, and Specifications (latest editions)

ISO 9001:2015 Quality Assurance – Quality Control Procedures and PCRS Operating Procedures

Oceaneering Subsea Coating Specification

ASME Boiler and Pressure Vessel Code, Section VIII, Division 1 and 2

ASME B31.4, Pipeline Transportation Systems for Liquid Hydrocarbons and Other Liquids

API 5L, Specification for Line Pipe

API 6A, Specification for Wellhead and Christmas Tree Equipment

API 6H, Specification on End Closures, Connectors and Swivels

API RP 1111, Design, Construction, Operation, and Maintenance of Offshore Hydrocarbon Pipelines

### Certifications

ISO 9001:2015 – World Certification Services Ltd. – Accredited by UKAS Quality Management

Det Norske Veritas (DNV) – per unit basis



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