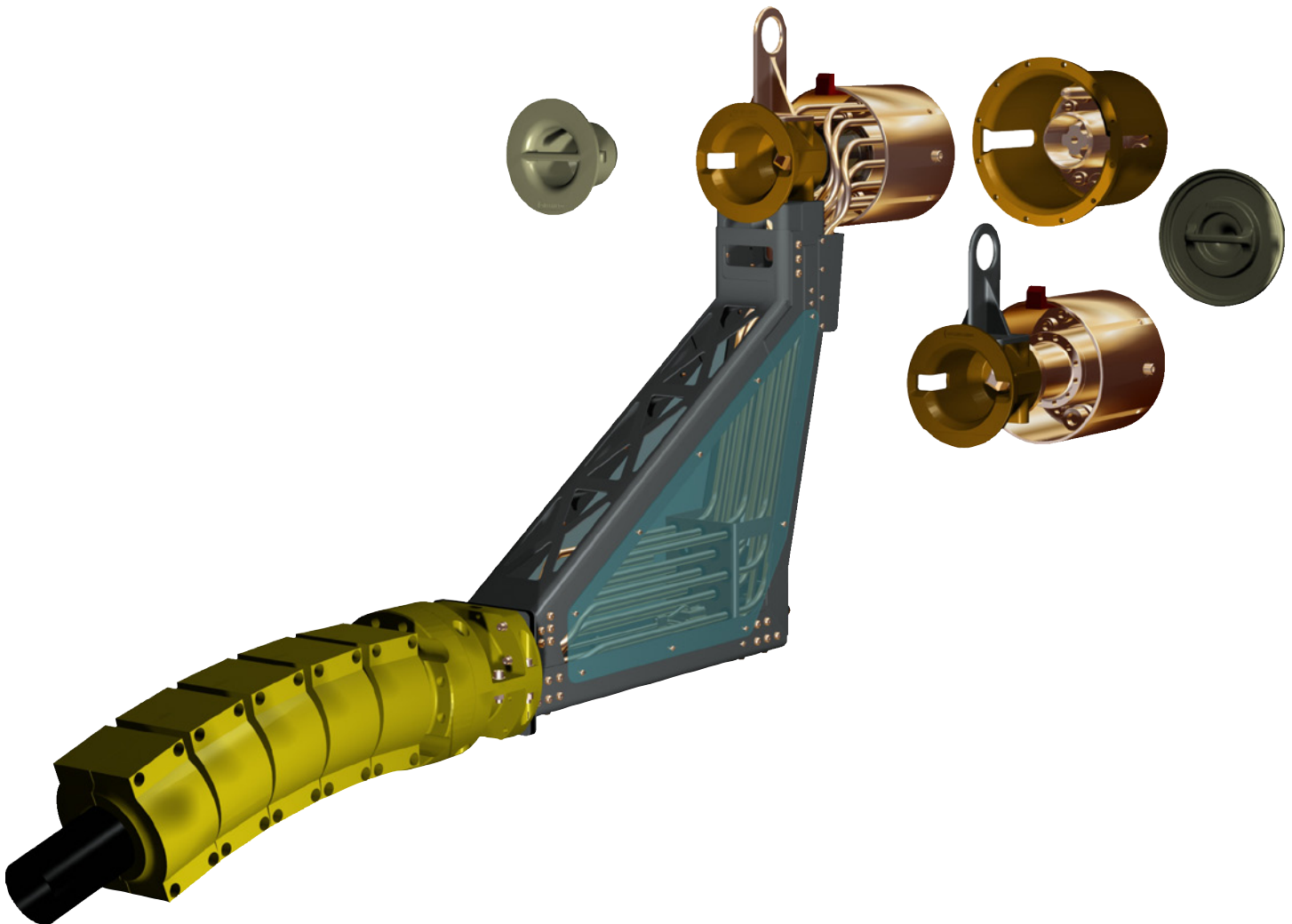


# SUBSEA JUNCTION PLATES

Oceaneering produces reliable and modular umbilical connection systems. The company's M-Series junction plate includes patented technology. For rapid delivery of the M-Series System, available inventory of modular components can be finished to specification for any flying lead configuration.

## Features

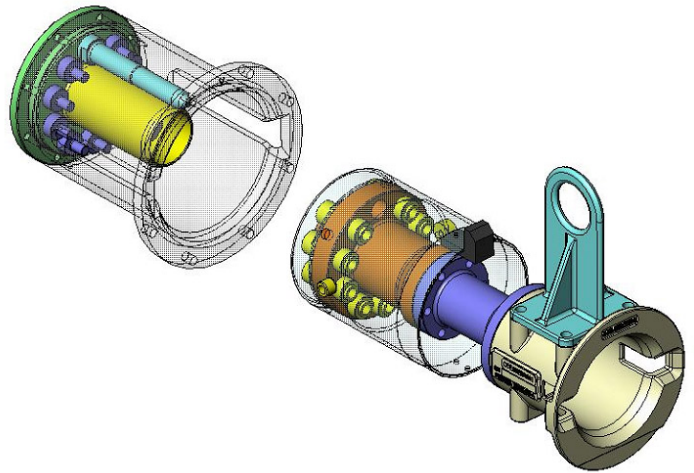
- Remotely Operated Vehicle (ROV) friendly with a Standard API 17D/ISO 13628-8 ROV torque tool installation interface
- Non-screw thread toggle latch interconnects J-Plate, locking in a single series of actions
- Suitable for thermoplastic hose or steel tube umbilicals
- Modular configurations in standard sizes for a wide range of applications
- J-Plates mate and de-mate under full system pressure with a full or eccentric coupler configuration



### Mini Series J-Plate

Designed for electro / hydraulic tree connections, Pipeline End Termination (PLET) / Pipeline End Manifold (PEM) and other small coupler count configurations:

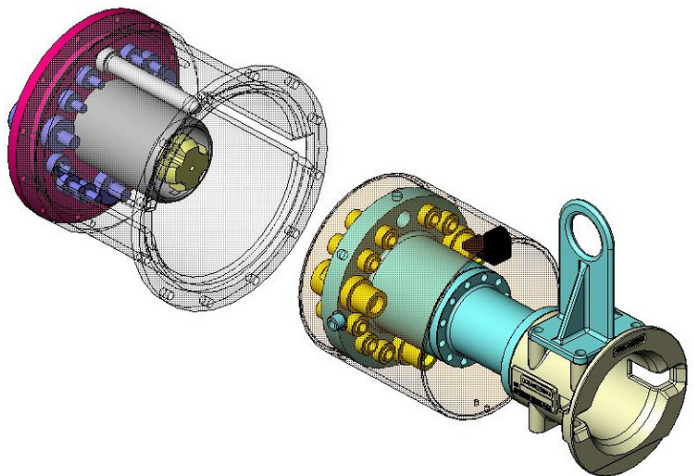
- Maximum 9 functions using 1/2 in National Couplers®
- API 17D Class 3 torque tool interface
- J-Plates mate and de-mate at full system pressure
- Qualified using high side and axial loads, applied to simulate stiffness of attached hydraulic flying lead



### M1 Series J-Plate

Designed for direct hydraulic XT connections, IWOCs and other mid-coupler count configurations:

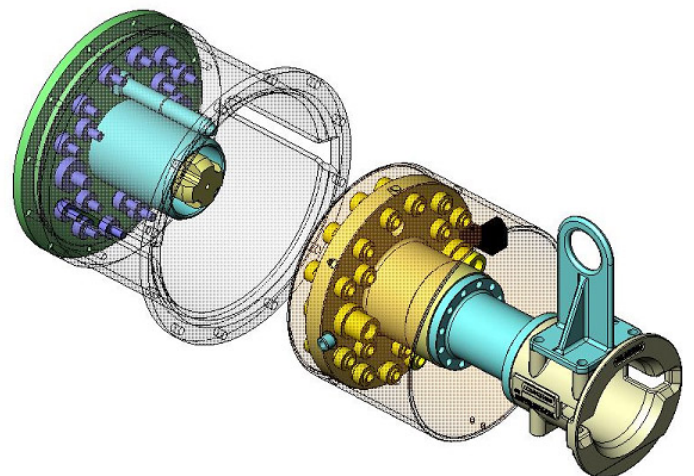
- Maximum 14 functions using 1/2 in National Couplers®
- Other configurations of 1/2 in and 1 in couplers available
- API 17D Class 4 torque tool interface
- J-Plates mate and de-mate at full system pressure
- Qualified using high side and axial loads applied to simulate stiffness of attached hydraulic flying lead



### M2 Series J-Plate

Designed for subsea field development Umbilical Termination Assembly (UTA) connections and Infield Distribution Umbilical connections

- Maximum 27 functions using 1/2 in National Couplers®
- Other configurations of 1/2 in & 1 in couplers available
- Electrical connections can be incorporated into design
- API 17D Class 4 torque tool interface
- J-Plates mate and de-mate at full system pressure
- Qualified using high side and axial loads applied to simulate stiffness of attached hydraulic flying lead



# DESIGN CONSIDERATIONS

## Conditions

- Maximum Design Pressure >15,000 psi
- Test Pressure 22,500 psi
- Maximum Water Depth >10,000 ft
- Design Life 20 years

## Compatible with Electrical Flying Leads

- Fluid Cleanliness
- Hydraulic Lines AS 4059 class 6
- Chemical Lines AS 4059 class 6

## Standards

- ISO 13682-5
- ISO 13682-6
- ISO 13682-8
- ISO 13682-9
- API 17D
- API 17F
- API 17H

## Fluid Compatibility

- National Couplers® available in metal or elastometric seals for a fluid range including:
- Hydraulic Control Fluid: Water Based, Glycol Mix
- Injected Chemicals: Ethanol, Scale Inhibitor, Demulsifier, Corrosion Inhibitor
- Other Fluids: Completion Fluids, Process Fluids

## Installation / Interface

- Patented toggle latch provides primary and secondary mating and de-mating
- Standard API 17D Rotary Torque Tool Interface
- Gross, fine, clock and standoff alignments prevent damage to plates and couplers
- Robust design allows an ROV to “Fly to Place” installation
- National Couplers® interface to subsea structure tubing via weld prep steel tube stubs

## Fixed Junction Plate (Fixed Plate, Inboard Plate)

- Fixed J-Plate is rigidly attached to the subsea structure
- Heavy duty constructed carbon steel housing with corrosion and chip resistant coating (Xylan® or other)
- Corrosion resistant alloy internal components
- All couplers are mounted internal to the housing for damage prevention

## Removable Junction Plate (Free Plate, Outboard Plate)

- Standardized interface terminates the Removable J-Plate to the flying lead termination head
- Completely constructed of corrosion resistant alloy internal components
- Available with lightweight thermoplastic, steel tube & direct umbilical terminations



**United States**

San Diego, California  
 Gales Ferry, Connecticut  
 Orlando, Florida  
 Panama City, Florida  
 Pearl Harbor, Hawaii  
 Bayou Vista, Louisiana  
 Houma, Louisiana  
 Lafayette, Louisiana  
 Morgan City, Louisiana  
 New Iberia, Louisiana  
 New Orleans, Louisiana  
 Cataumet, Massachusetts  
 Hanover, Maryland  
 Portsmouth, New Hampshire  
 Austin, Texas  
 Corpus Christi, Texas  
 Clear Lake, Texas  
 Houston, Texas ★  
 Ingleside, Texas  
 Chesapeake, Virginia

**International**

Cabinda, Angola  
 Lobito, Angola  
 Luanda, Angola  
 Perth, W.A., Australia  
 Baku, Azerbaijan  
 Macaé, Brasil  
 Niteroi, Brasil  
 Rio de Janeiro, Brasil  
 St. John's, Newfoundland, Canada  
 Cairo, Egypt  
 Malabo, Equatorial Guinea  
 Tbilisi, Georgia  
 Takoradi, Ghana  
 Mumbai, India  
 Chandigarh, India  
 Kakinada, India  
 Balikpapan, Indonesia  
 Batam, Indonesia  
 Handil, Indonesia  
 Jakarta, Indonesia

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 Miri, Sarawak, Malaysia  
 Mexico D.F., Mexico  
 Cd. del Carmen, Mexico  
 Ikeja, Lagos, Nigeria  
 Port Harcourt, Nigeria  
 Warri, Nigeria  
 Nodeland, Norway  
 Stavanger, Norway  
 Jurong, Singapore  
 Zug, Switzerland  
 Abu Dhabi, U.A.E.  
 Dubai, U.A.E.  
 Aberdeen, Scotland, U.K.  
 Gloucester, England, U.K.  
 Immingham, England, U.K.  
 London, England, U.K.  
 Mossbank, Shetland Islands, U.K.  
 Port Clarence, North Tees, U.K.

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★ Denotes Corporate Office

