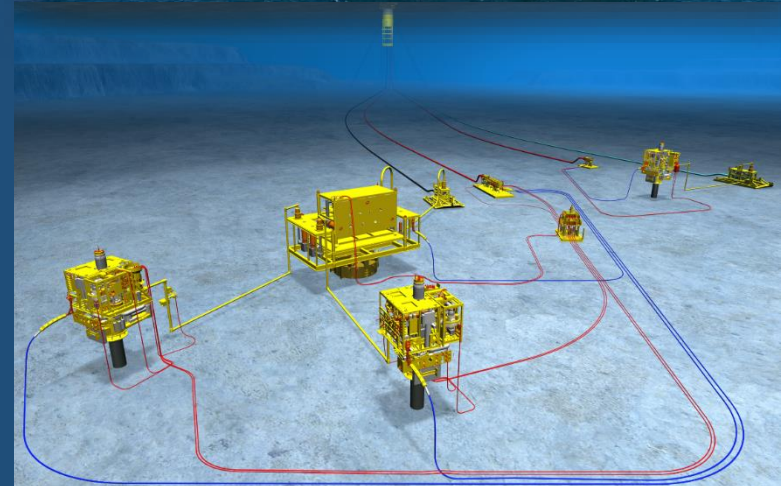




*Oil and Gas*  
**Subsea Chemical  
Storage and Injection**

**Hydraulic  
Connection Systems**

**HAMMELMANN®**

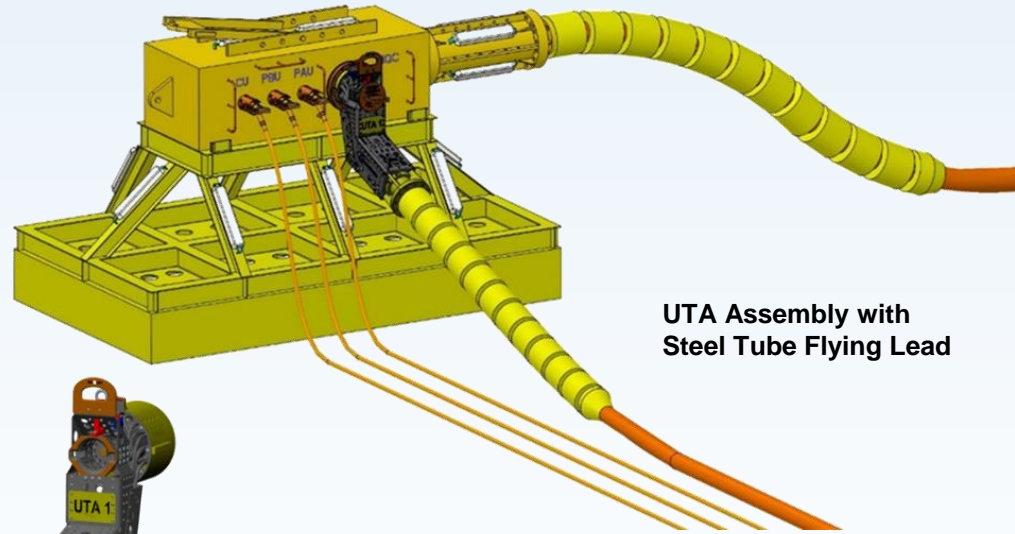


**Hydraulic Connection Systems**

# Subsea Hydraulic Connection Systems

## System Highlights

- Field Proven Connection Equipment
- UTA & Distribution Manifolds, Hydraulic and Electric
- Cost Effective Design, both Configuration & Manufacturing
- Hydraulic Stab Plates, Terminations and Accessories
- Minimizes need for Extra Flotation Devices
- Fixed or Manifold Plate, needs No Coupler Float
- Universal Pallet Storage and Deployment Systems
- Long Term Protection Covers – Pressure Retaining
- Test Plates, Installation Accessories

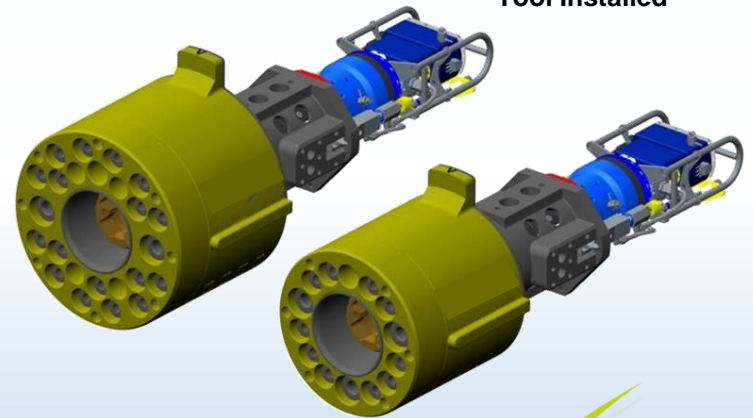


UTA Assembly with Steel Tube Flying Lead



## Fixed and Removable Junction Plates

- High Coupler Count Plate for Use in Large Jumper STFL and Bridging Plates
- Utility Plate designed for most all Applications
- Removable Plate and Fixed Plate High Impact Guards for Protection
- Multiple Coupler Manufacturer Compatible



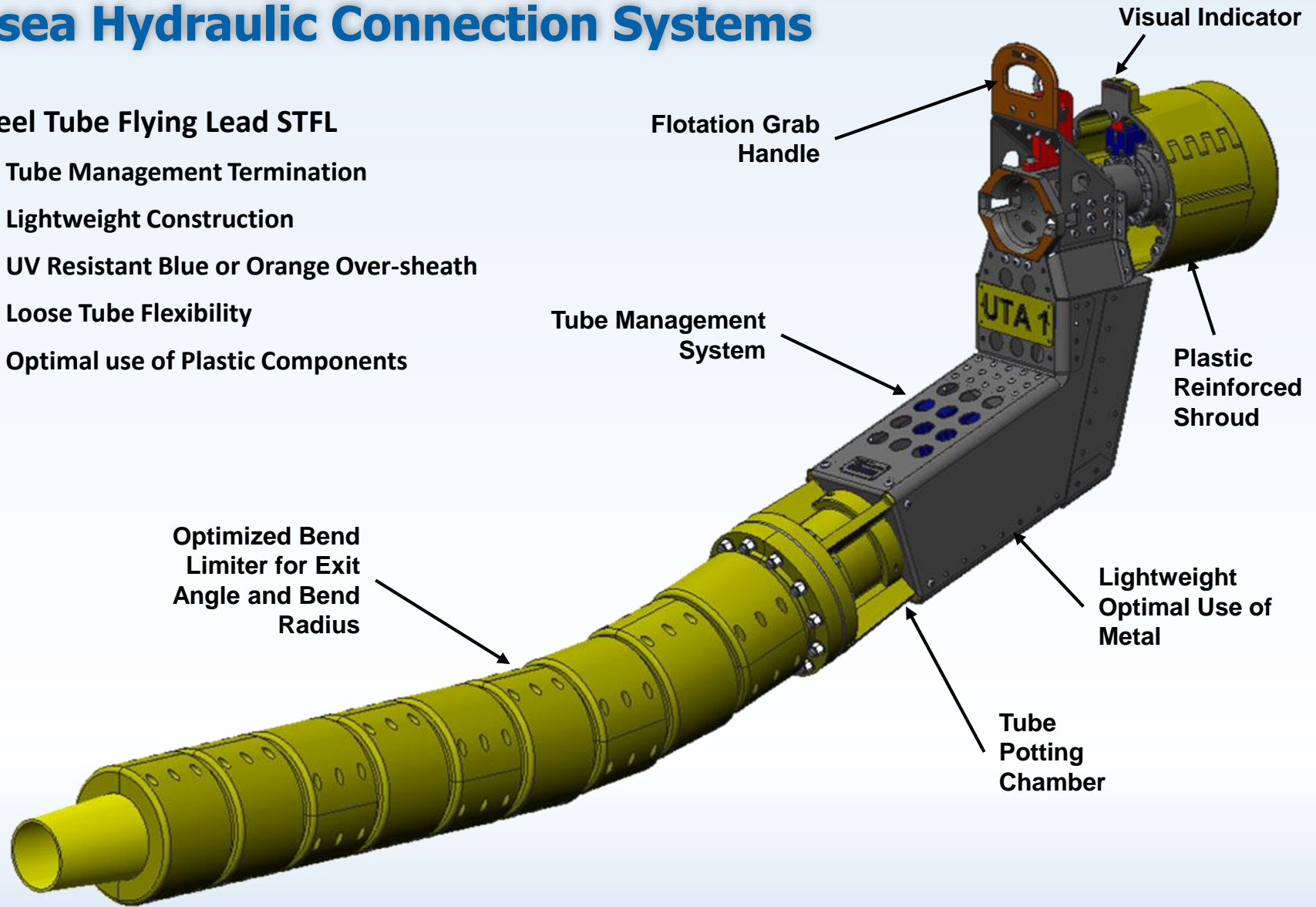
Shown with Torque Tool Installed

High Coupler Count & Utility Plate

# Subsea Hydraulic Connection Systems

## Steel Tube Flying Lead STFL

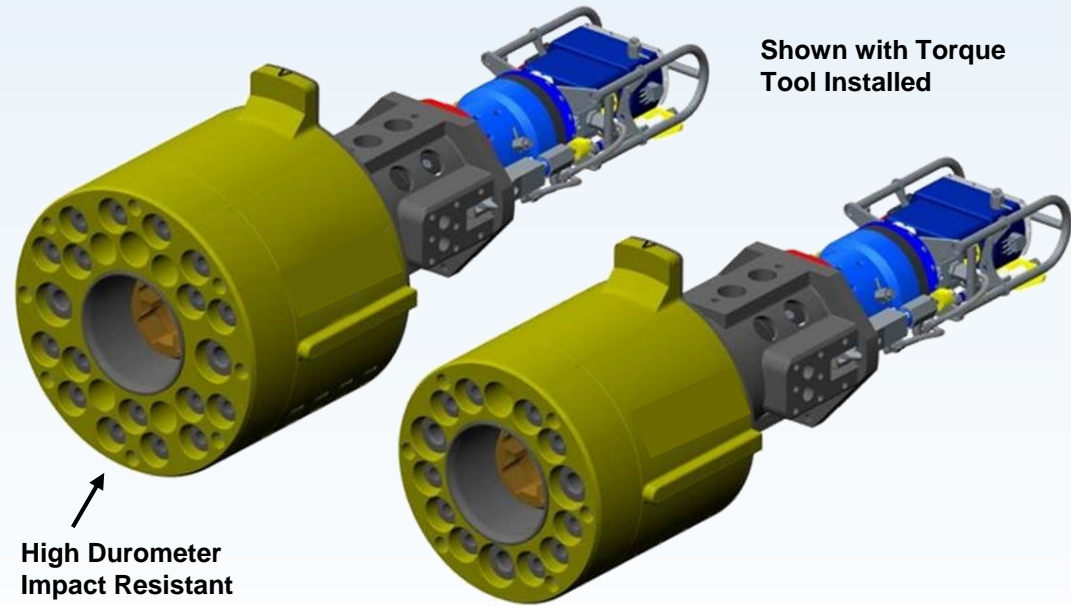
- Tube Management Termination
- Lightweight Construction
- UV Resistant Blue or Orange Over-sheath
- Loose Tube Flexibility
- Optimal use of Plastic Components



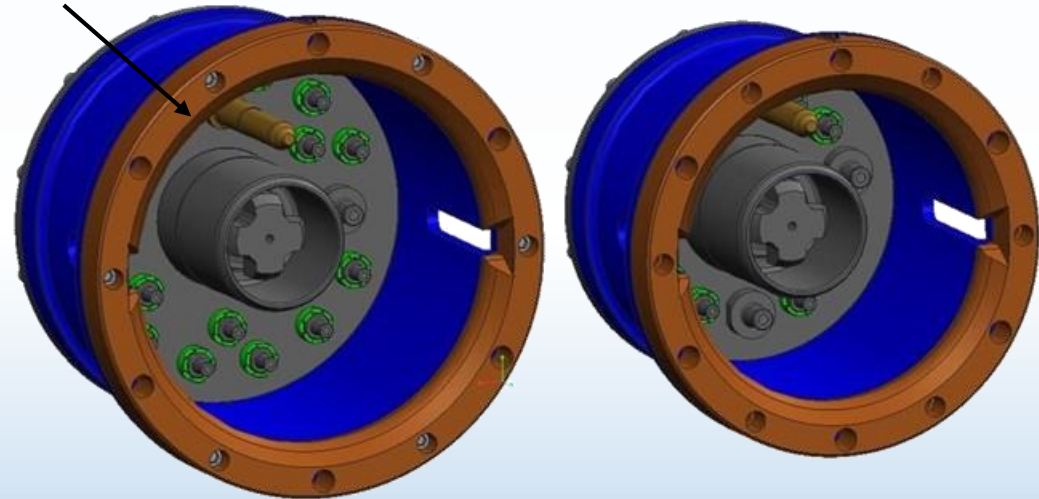
# Subsea Hydraulic Connection Systems

## Fixed and Removable Junction Plates

- High Coupler Count Plate for Use in Large Jumper STFL and Bridging Plates
- Utility Plate designed for most all Applications
- Removable Plate and Fixed Plate High Impact Guards for Protection
- Compatible with Multiple Manufacturer's Hydraulic Couplings
- Hydraulic Coupling Common Latch Between both Models



High Durometer Impact Resistant Trim



High Coupler Count Plate

Utility Plate

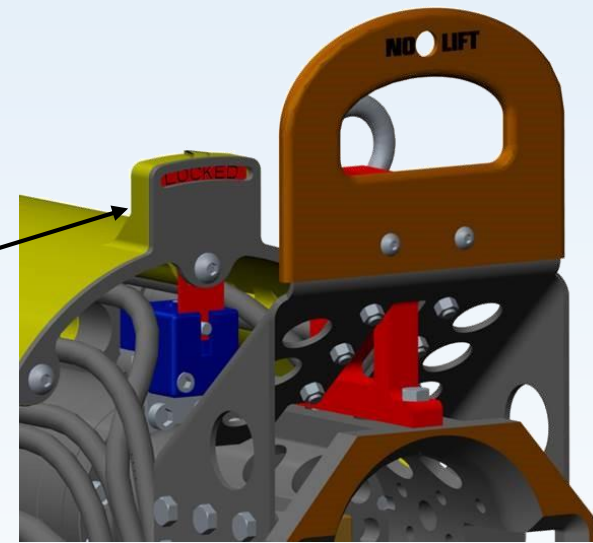
Weights	Metric		Imperial	
	In air (kgf)	In seawater (kgf)	In air (lbf)	In seawater (lbf)
High Count Plate				
Free MQC Assembly	121.2	98.8	267	218
Fixed MQC Assembly	138.2	117.4	304	259
Termination Head	62	52	135	115
Utility Plate				
Free MQC Assembly	105.6	86.9	233	191
Fixed MQC Assembly	112.6	96.6	248	213
Termination Head	62	52	135	115

# Subsea Hydraulic Connection Systems

## Fixed and Removable Junction Plates

- Tree Utility Connection and High Coupler Count Versions
- Field Proven Latch and Alignment System
- Radial Metal, Dual Peek Seals in Couplers
- No Float Requirement on Fixed Plate
- Easy to Read Visual Indicator

Visual Indicator



Field Proven Alignment System

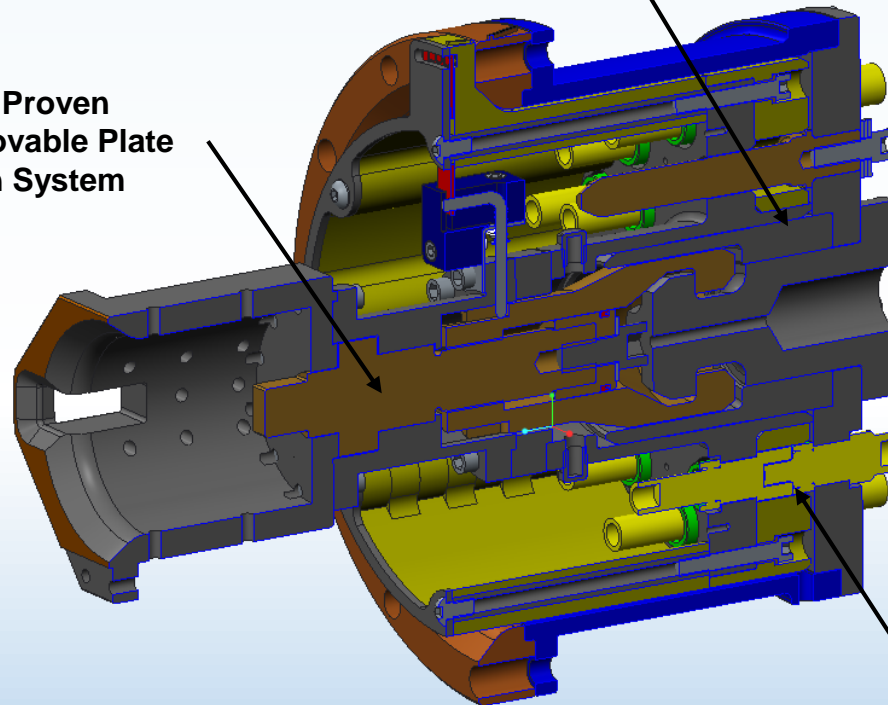
Field Proven Removable Plate Latch System

Field Proven Fixed Plate Latch System

API 17H Torque Tool Interface

No Male Coupling Float Required

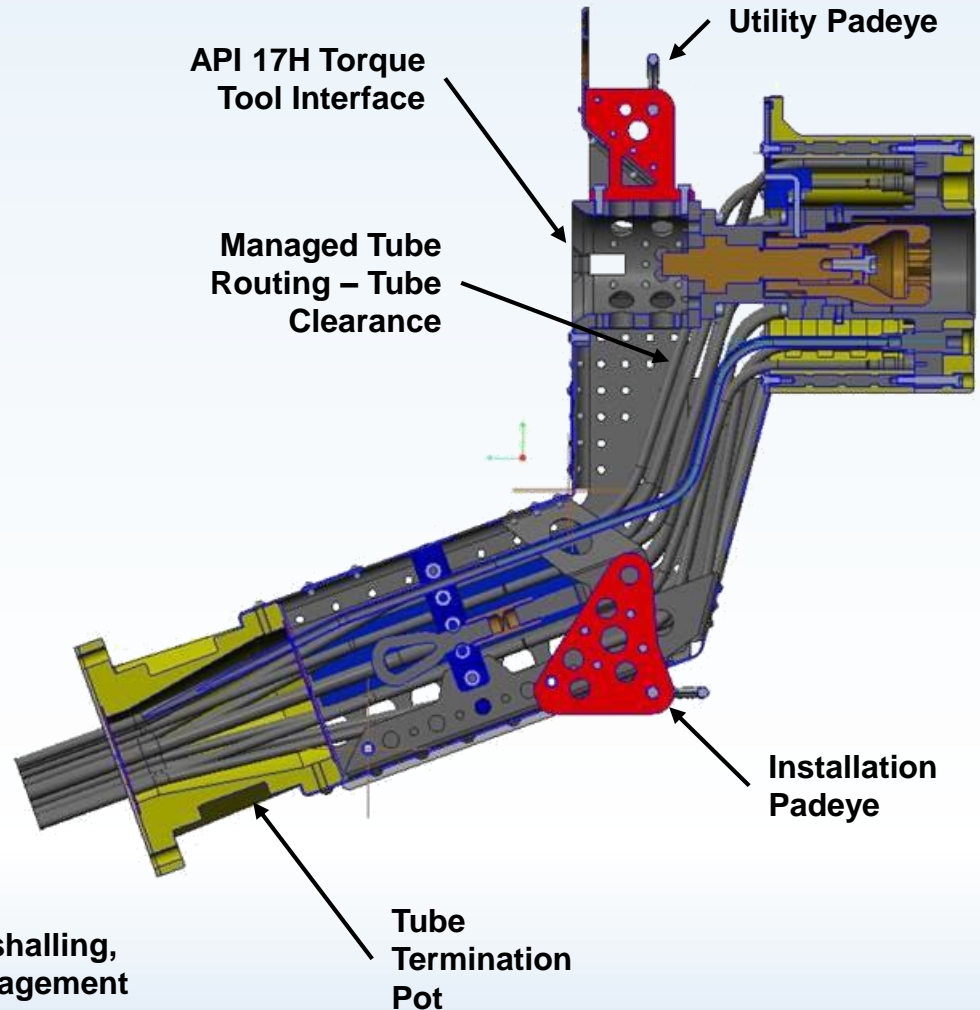
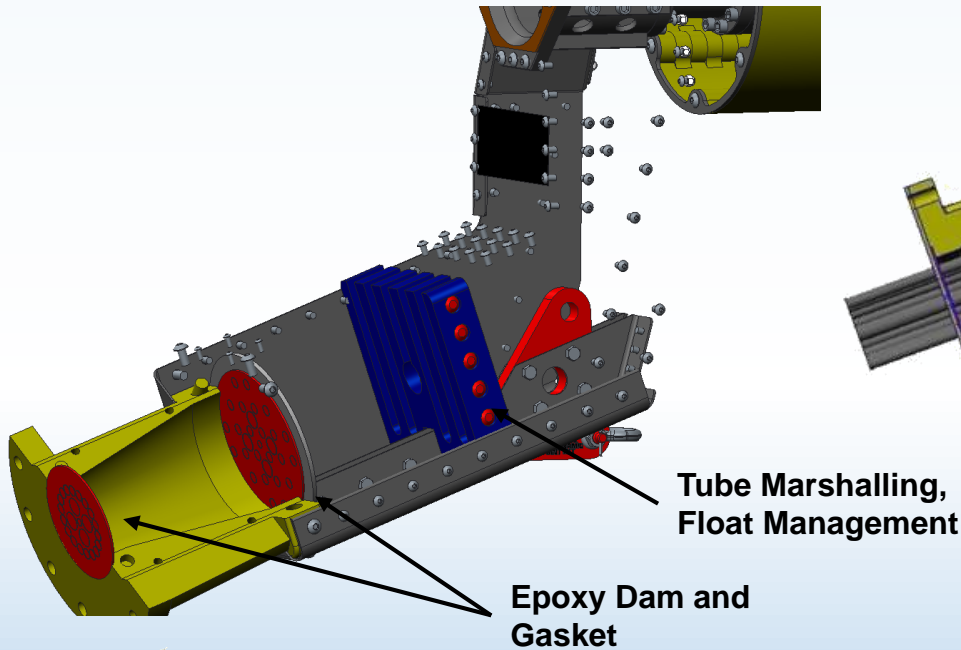
Couplings



# Subsea Hydraulic Connection Systems

## Tube Management Termination

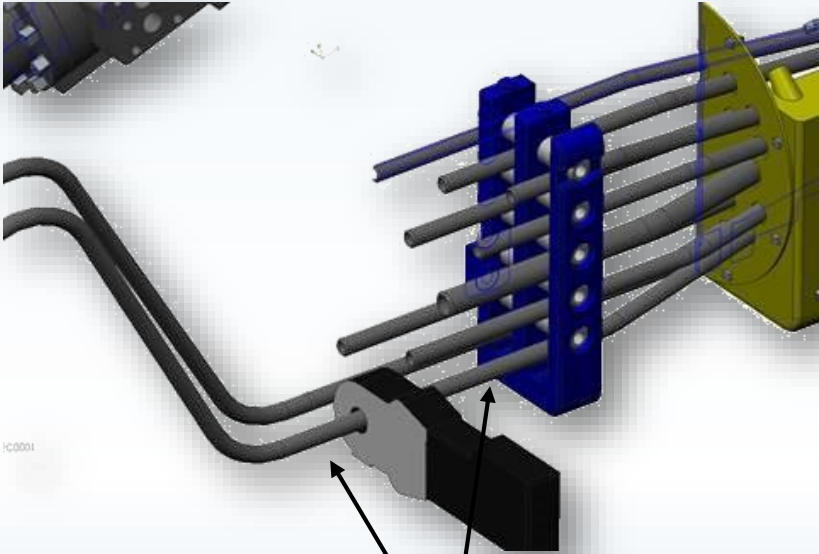
- Tube Termination Pot, efficiently Locks Tubing into place
- Epoxy Dam and Gasket
- Tube Marshalling, Float Management, all float for Hydraulic Couplings is in the Removable Plate
- Managed Tube Routing – Tube Clearance is Maintained



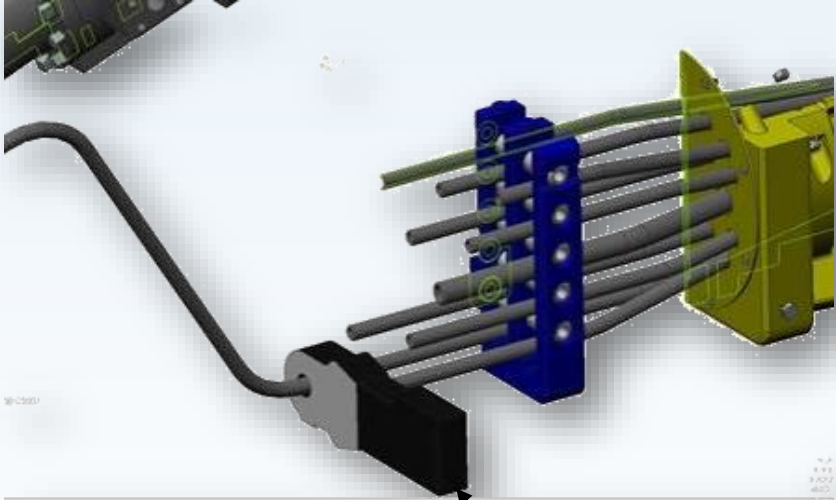
# Subsea Hydraulic Connection Systems

## Tube Welding

- Manual TIG or Autonomous Welded
- Tubes Spaced for Weld Head
- Fast and Accurate
- Works for Crowded and High Tube Counts

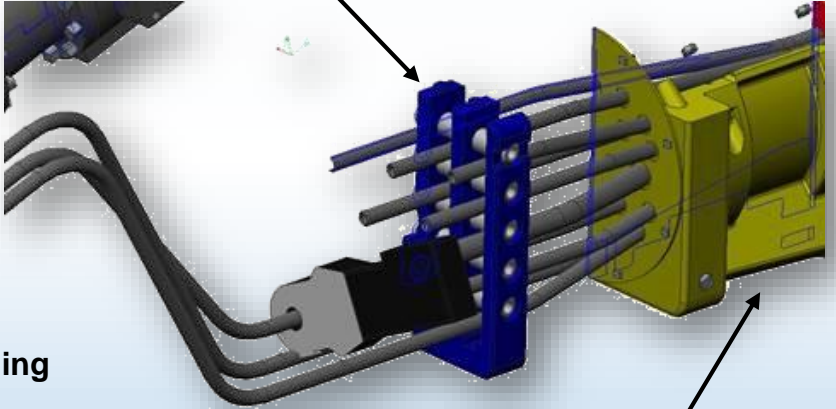


Tubing from Flying Lead  
Welded to Tubing from Coupling



Managed Tube  
Routing – Tube  
Clearance

Weld Head

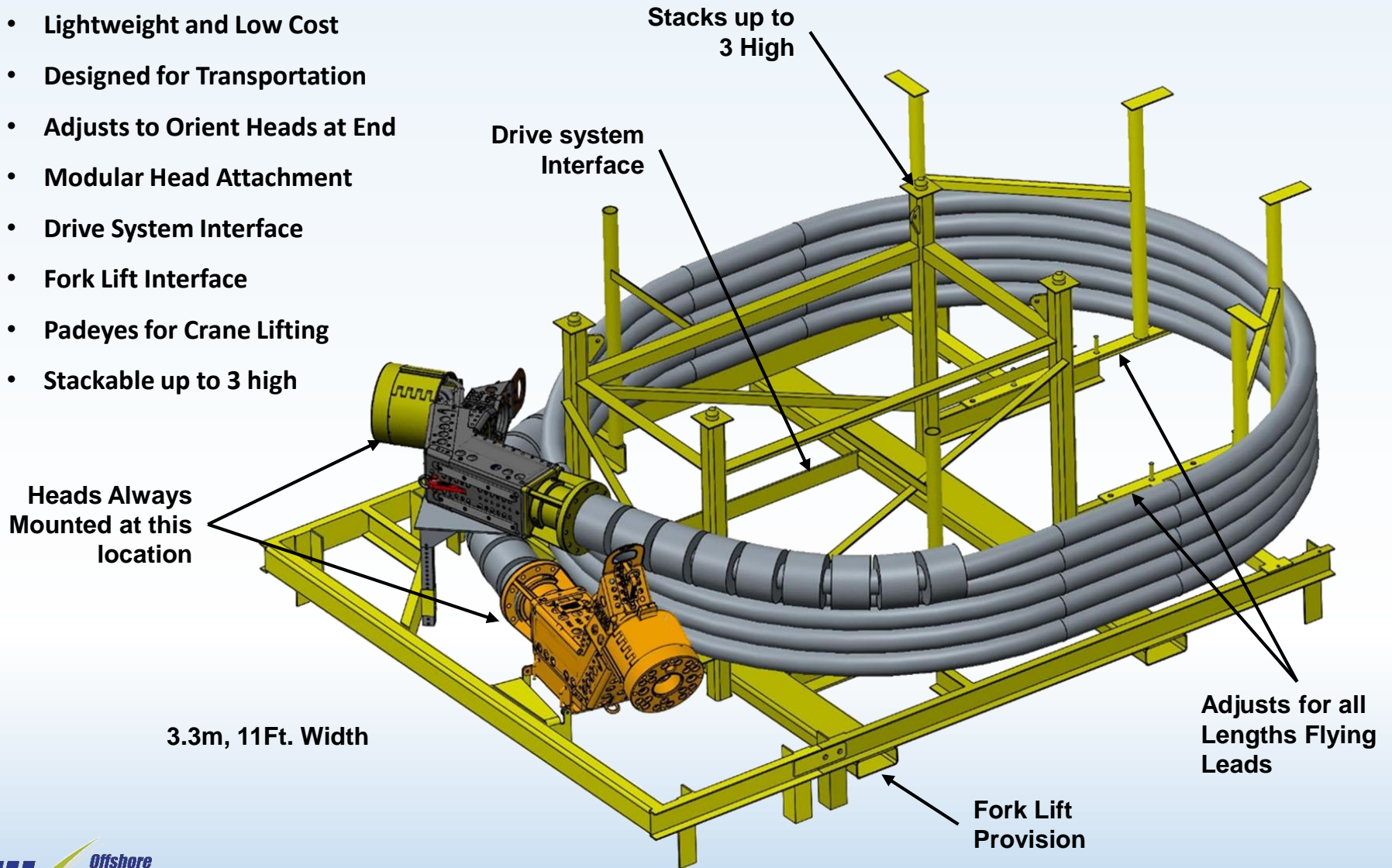


Tube Pot

# Subsea Hydraulic Connection Systems

## Pallet and Storage Systems

- Lightweight and Low Cost
- Designed for Transportation
- Adjusts to Orient Heads at End
- Modular Head Attachment
- Drive System Interface
- Fork Lift Interface
- Padeyes for Crane Lifting
- Stackable up to 3 high



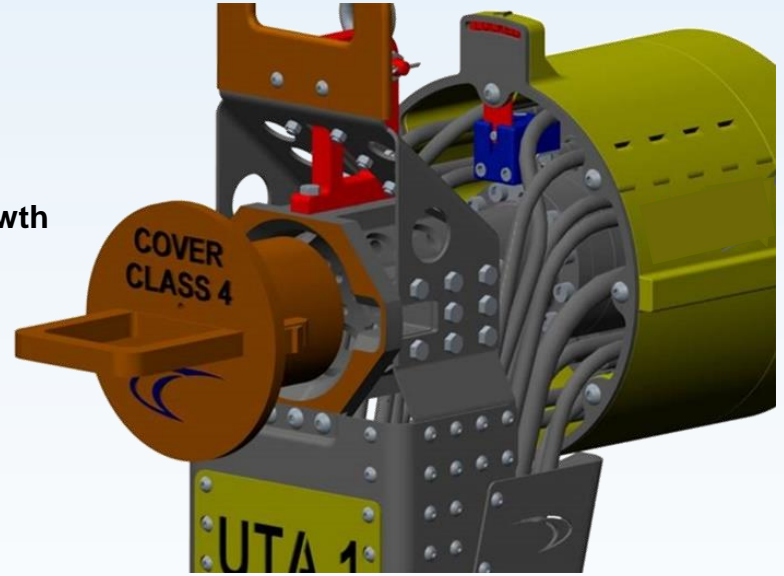


# Subsea Hydraulic Connection Systems

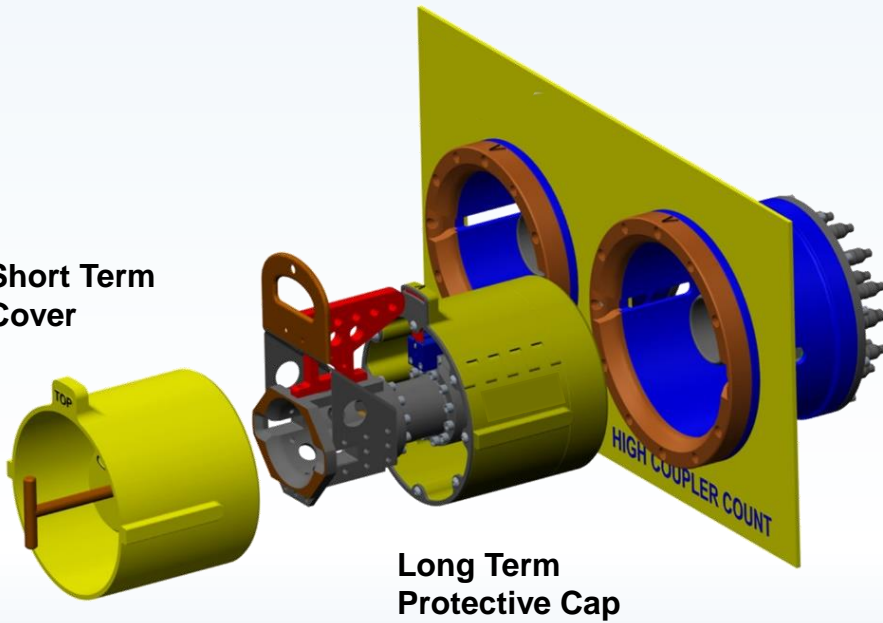
## Flying Lead Accessories

- API 17H Torque Tool Marine Growth Cover
- Short Term Fixed Plate Cover
- Long Term Protective Cap LTPC

Marine Growth Cover

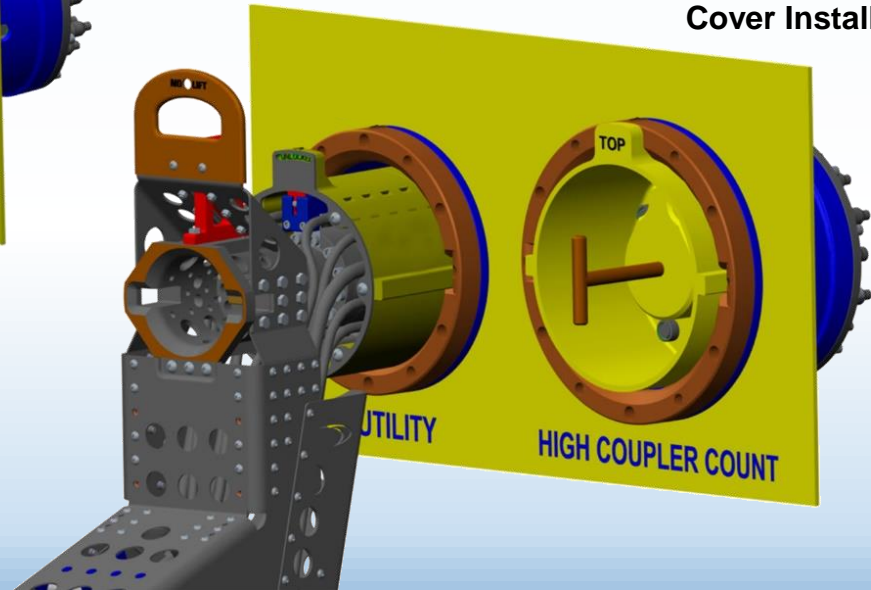


Short Term Cover



Long Term Protective Cap

Short Term Cover Installed



# Thank You

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