OCEANEERING®

oceaneering.com

Hydraulic Flying Leads

Providing a safe and efficient method of making connections between subsea distribution hardware

Flying leads support the conveyance of hydraulic fluid and/or chemicals between subsea equipment. Oceaneering® hydraulic flying leads are designed to meet a project's unique requirements and may incorporate either steel tubes or thermoplastic hose as primary conduits.

Combining the conduit section with a termination head weldment and the required ROV operable junction plate provides the customer with full functionality.

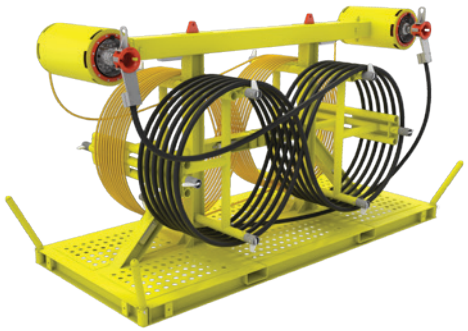
FEATURES

- **Proven, modular designs**
- **ROV friendly**
- **Extensive track record**

2016.03-A

Hydraulic Flying Leads

Oceaneering® hydraulic flying leads can be customized to suit requirements. Flying leads may include encased and extruded umbilical or can employ the versatility of a loose tube bundle configuration. Each flying lead configuration is designed to support identified field applications.



	Steel tube conduit	Thermoplastic hose conduit
Typical applications and advantages	Deep water applications Collapse resistant and ROV friendly	Deployed in shallow water and IWOCS applications where flying leads are not permanently deployed Flexible and ROV friendly
Design Life	25 Years	25 Years
Conduit Details	Steel Tube, generally over sheathed (vendor supplied) Sizes and pressure ratings vary (up to ¾ in tubes at 10 kpsi) Conduit section: per ISO 13628-5 Termination head: per ASME B31.3	Thermoplastic Hose (Oceaneering/vendor) Standard and High Collapse Resistance (HCR) Sizes and pressure ratings vary (up to 1 in hoses, pressure ratings up to 10 kpsi, dependent on hose size)
Configuration	Loose tube bundle Cabled umbilical	Cabled umbilical
Termination head weldment options	20*, 45*, 90 degree weldments suitable for Oceaneering Mini, M1, and M2 Junction Plates Pre-bent designs available	20*, 45*, 90 degree weldments suitable for Oceaneering Mini, M1, and M2 Junction Plates Pre-bent designs available
Potting options	Armor pot, resin, potting plate	Naturally aligning pyramid stab and hinge design
Load rating	Installation padeye designed per DNV 2.7-3 Default 8,000 lb / 4 short ton Shackles designed to meet Working Load Limit (WLL) requirements	Designed to suit available flange located at the top of the I Tube/J Tube (hardware included as required)
Design working pressure	Designed to meet project system and test pressure requirements (typically 15,000 psi)	Designed to meet project system and test pressure requirements (typically 10,000 psi WP)
Outer sheath options	Tigerflex™ Zippertubing® Spiralguard® Expando® Extruded sheath (when cabled)	Extruded sheath
Strength member	Typically not required	Included as default (may be armaid fiber or wire rope)
Cathodic protection	Per DNV-RP-401 (25 years)	Per DNV-RP-401 (25 years)
Bend protection options, if required	Bend limiter Polyurethane and steel options	Bend strain reliever with polyurethane or steel interface
Storage method	Pallet/Horizontal Reel Wooden Pallets/Crates Horizontal Reel (large bore steel tube)	Deployment Frame Wooden Pallets/Crates Pallet/Horizontal Reel
Recommended installation method	Vertical Installation with clump weight and buoyancy module	Deployment frame Deployment basket