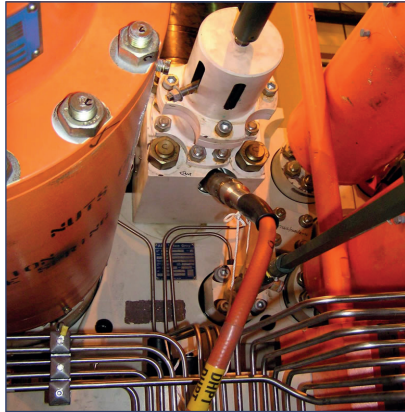
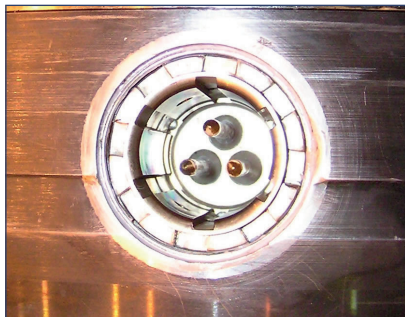


Horizontal Tree Electrical Feedthrough System



Bonnet Actuator Plug Assembly

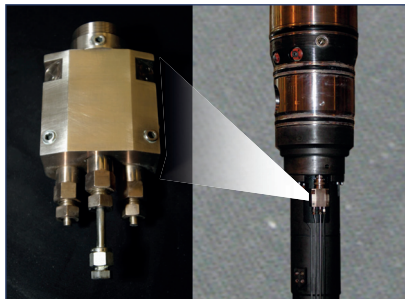
- Single or multiple electrical connectors available
- Inconel clad M-M sealing provides reliable final leak path barrier protection
- Extended type testing in a range of completion fluids enables the actuator to work in all harsh environments
- Pressure and mate/break cycle tested by RMSpumptools before delivery ensuring working life durability
- Variety of electrical connectors for subsea outlet
- Positive internal pressure repels the external environment and ensures electrical integrity is maximised
- Lloyds witnessed and approved pressure, temperature and mate/break test regime



Multi-Pin Tubing Hanger Connector

Tubing Hanger Receptacle Assembly

- Single or multiple electrical connectors available
- Spring energised conductor wand assembly enables simple installation and in-field change-out
- Whole life sealing system reliability is ensured with M-M sealing in upper and lower Tubing Hanger pockets
- Proven RMSpumptools wellhead instrumentation pressure barrier technology incorporated
- Pressure and temperature cycle test regime witnessed and approved by Lloyds



Multi-Pin Lower Connector

Lower Tubing Hanger Dry Mate Connector

- Single or multiple electrical connectors available
- Easy field installation of downhole cables
- Optimised to fit into Orientation Sleeve pocket
- Lloyds witnessed and approved pressure as well as temperature cycle test regime
- Industry standard ferrule assembly onto 1/4" downhole instrument cable
- Pressure testable metal sealing

Specification - Non Standard Range

Products can be tailored to suit individual project requirements.

M-M and all pres. barriers	Approved to API 17D PR2 + API 6A PSL4
Internal	10,000 psi Temp Class P, R, S, T & U 15,000 psi Temp Class S, T & U
External	15,000 psi Temp Class V

2 regimes of 100 Mate/Break Cycles including:

- Salt Water at ambient pressure
- Salt Water at 2,725 psi (6,250ft (1875m)
- Dirty salt water at ambient pressure
- Control fluid at ambient pressure
- Control fluid at 2,725 psi (6,250ft (1875m)
- Misalignment tests in salt water at ambient pressure
- Varying mating speeds in salt water at ambient pressure

Specification - Standard Range

RMS Ref	Pressure Rating (psi)	Number of Conductors	Temperature Rating	Water Depth
234/12/022	10,000	1 + Earth	0 - 250°F	5,000ft (1500m)
234/12/081	10,000	3 + Common Earth	0 - 250°F	5,000ft (1500m)
234/12/149	10,000	1 + Earth	0 - 300°F	10,000ft (3000m)
234/12/150	10,000	3 + Common Earth	0 - 300°F	10,000ft (3000m)

All Types

Misalignment	+/- 1.5 mm Vertically +/- 1.5° Radially
No. of turns to mate/demate	17 Turns
ROV Torque	30 ft lb (40 Nm) @ 6,000 ft (1900m)
Power Rating	5 Amps, 500 V d.c.
ROV Shaft Mating Speed	60 - 240 rpm

