

OceanPower™

10kV dc Single Phase System

The RMSpumptools 10kV dc Single Phase System consists of two Wet-Mate Connectors mounted on a Stab Plate system. Both Wet-Mate Connectors are terminated by Pressure Balanced Oil-Fill (PBOF) Hoses and cable to identical Penetrators which are mounted to the customer's Pressure Vessels (PV) with cable terminated to their equipment. The female (Wet-Mate Plug) Connector is mounted to the Upper (retrievable) Stab Plate via a Compliant Mount. The male (Wet-Mate Receptacle) Connector is mounted to the Lower Stab Plate and remains permanently installed.

Operational Requirements

Design Life:	25 years
Rated Pressure:	4,500 Psi (3,000m depth pressure)
Working Temperature Range:	0°C to 149°C (32°F to 300°F)
Storage Temperature Range:	-30°C to 40°C (-22°F to 104°F)
Deployment Water Depth:	0 - 3,000m

Mechanical Requirements

Sealing:	Metallic Primary and Elastomeric Backup or Dual Elastomeric
Interface Drawings:	As per drawings 247-36-021, 022, 023
Max Misalignment (x & y axis):	± 3mm
Max Angular Misalignment (x & y axis):	± 1°

Electrical Specification

Rated Voltage U:	10 kV dc
Maximum Voltage:	10 kV dc
Maximum Working Current:	~20 A
Maximum Contact Resistance:	≤ 2.5 mohms (per contact, less conductor & cable resistance)
Insulative Resistance:	≥ 10 Gohms @ 20°C

Chemical/Corrosion Considerations

External Environment Media:	Seawater
PV1 Internal Environment Media:	Nitrogen Gas at 1atm
PV2 Internal Environment Media:	Silicon Dielectric Oil at 1atm
Stab Plate / PV Material:	Titanium
Stab Plate / PV Fixings:	Titanium size M8 (Customer supply)

Material Specification

Housing:	Stainless Steel (Superduplex) HS Cupronickel Alloy
Contacts:	Gold Plated Beryllium Copper / Copper Silver
Insulation:	PEEK 450G, Silicon Rubber
Dielectric Oil:	Midel 7131
Hoses:	3/4" ID with 2507 JIC Fittings
Elastomers:	HNBR/FKM or equivalent

Design Philosophy

Seal Philosophy:	Elastomeric Seals and Mechanical Barrier
Electrical Insulation:	Thermoplastic or Elastomer2507

Cable

Wet-Mate Connector to Penetrator:	1 x 16mm² 13.8/15kV Class 5 Conductors
Penetrator to PV Termination:	1 x PTFE Cable

Testing

Factory Acceptance Test (FAT)
Qualification Testing

