RMS pumptools

WellPower™

Split-Phase Vertical Electrical Connector V2

The High Pressure ESP connector system is used in Subsea Tree, TH, THRT & Downhole environments and consists of three single phase Wet-Mate Power Connectors spaced around the production bore. The female Plug Connector halves are in the upper retrievable section, while the male Receptacle Connector halves are fixed within the lower section. The connector system provides a long-term reliable connection in a subsea downhole environment.

Operational Requirements

Design Life:	Permanently Installed Connector 10 years
Rated Pressure:	10,000 Psi
Test Pressure:	15,000 Psi
Design Pressure:	19,500 Psi
Working Temperature Range:	-18ºC to 93ºC (0ºF to 200ºF)
Storage Temperature Range:	-30ºC to 40ºC (-22ºF to 104ºF)
Number of Cycles:	100

Mechanical Requirements

Plug

Diameter:	1.250" (Front Body) Rear to suit application
Length:	To suit application

Receptacle

Diameter:	1.653" (Lock Nut) 1.250" (Body in TH)
Length:	13.850"
Lock Nut Thread:	1.5"-20 UN 2A
Stack-up Tolerance:	± 0.25"
Misalignment Tolerance:	± 0.012"

Electrical Specification

Rated Voltage:	2.89 / 5.0 kVAC (Uo/U)
Breakdown Voltage:	> 8Uo (23.1 kV)
Ampacity:	150 A
Frequency Range:	30 - 85 HZ

Material Specification

Housing:	316 Stainless Steel, Inconel 625 (nipple) HS Cupro Nickel Alloy
Contacts:	Gold Plated Beryllium Copper
Insulation:	PEEK 450G

Design Philosophy

Main Dielectric Filled Body:	Pressure Balanced
Sealing:	Dual Electrical and Mechanical Barriers
Electrical Insulation Primary:	Thermoplastic or Elastomer
Lower Connector Pressure Barrier	

Qualification Testing

Standard Electrical Integrity Tests
Dry Mated Test
Mains Water Mate / Demate Cycle Test
Seawater Mate / Demate Cycle Test
Turbid Tank Test
Helium Leak Test
Cold Water Mate / Demate Cycle Test
Simulated Environment Mate / Demate Cycle Test
Simulated Environment Material Compatibility Test
Rapid Mate / Demate Cycle Test
Temperature Rise (current)
High Voltage
Vibration

Key Performance Features

Unique Dielectric Oil Flow System
Protective Contact on Male/Female Halves
HPHT Application Materials
Energised Seals
Metal to Metal Sealing
Gold-plated Contacts
Crimp Technology