WellConnect™ 1" Subsea Vertical Electrical Connector

The Vertical Instrument Wet Mateable Electrical Connector is designed to provide continuous electrical connection between the Tubing Hanger and the X-Tree. The purpose of the Vertical Electrical Connector is to provide a long term reliable electrical connection for DHPT Applications. The system also uses a THRT Connection to allow system checks prior to the X-Tree landing. The design is a smaller bore design with lower receptacle 27.9mm in diameter.

Operational Requirements
Design Life: 25 years
Location within Completion: Subsea Vertical X-Tree
Rated Pressure: 15,000 Psi
Test Pressure: 22,500 Psi
Working Temperature Range: -20ºC to 155ºC
Storage Temperature Range: -18ºC Min
Number of Mating Cycles: 100

Mechanical Requirements
Envelope Diameter: As per Customer Specifications
Stack up Tolerance: ± 3.5mm
Mechanical Shock: Half sine period at 6g
Angular Misalignment: ± 0.5º
Radial Misalignment: ± 1mm

Electrical Specification
Number of Contact: 1
Contact Method: Multi-contact
Working Voltage: 500 Vdc
Test Voltage (to Earth): 1000Vdc
Ampacity: 5 A

Design Philosophy
Main Dielectric Filled Body: Pressure Balanced
Seal Philosophy: Dual Electrical and Mechanical Barriers
Electrical Insulation Primary Thermoplastic or Elastomer
Secondary Dielectric Fluid
Independent Design Review Validation

Key Performance Features
Unique Oil Flow Design to Flush the Electrical Connection during Mating
Protective Contact on Male/Female Halves
HPHT Application Materials
Energised Seals
Metal to Metal Sealing
Gold-plated Contacts
Crimp Technology

Material Specification
Housing: HS Cupronickel/Superduplex to ISO 15156-3
Contact: Gold Plated Beryllium Copper
Insulation: PEEK HT

Qualification Testing
Proof Voltage
Insulation Resistance
Contact Resistance
Pressure Test
Pressure and Temperature Cycling (API 6A)
Long Term & Life Test
Temperature Limit
Vibration Test
Shock (Drop) Test
Gas Seal (Helium) Test
Misalignment Test
Individual Seal Test
Low Temperature Test