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: -20°C to 155°C
- Storage Temperature Range: -18°C 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: ± 0.5°
- 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