

WellConnect™

1" Subsea Vertical Fibre Optic Connector

The Vertical Instrument Wet Mateable Fibre Optic Connectors are designed to provide a continuous optical connection between the Tubing Hanger (TH) and the X-Tree. The purpose of the Vertical Optical Connectors is to provide a long-term reliable optical connection for DFOS (Downhole Fibre Optic Sensing) Applications.

Operational Requirements

Design Life:	25 years
Location within Completion:	Subsea Vertical X-Tree & TH
Rated Pressure:	15,000 Psi
Test Pressure:	22,500 Psi
Working Temperature Range:	-18°C to 150°C (0°F to 302°F)
Storage Temperature Range:	-40°C to 70°C (-40°F to 158°F)
Number of Mating Cycles:	25 turbid & 100

Mechanical Requirements

Envelope Diameter:	As per Customer Specifications
Stack up Tolerance:	± 3.5mm
Vibration:	Double Sweep 10 Hz to 60 Hz - 6g
Mechanical Shock:	Half sine, 11ms @ 10g, 30g
Angular Misalignment:	± 0.5°
Radial Misalignment:	± 1mm
Max. Mate/De-Mate Speed:	Mate 0.5 m/s, De-Mate 1.0 m/s

Optical Specification

Number of Contacts:	6 - with any combination of single mode or multi-mode
Contact Method:	APC Ferrule
Insertion Loss:	≤ 0.5 dB Single Mode (1310nm, 1550nm & 1625nm) ≤ 1.0 dB Multi-mode (850nm & 1300nm)
Return Loss:	≤ -45 dB Single Mode ≤ -30 dB Multi-mode
Max. Optical Crosstalk:	≤ -60 dB Single Mode ≤ -60 dB Multi-mode

Material Specification

Housing:	Receptacle - HS Cupronickel Alloy
Contact:	Plug - Stainless Steel 316 (max. 22 HRC) HT APC Ferrules

Design Philosophy

Main Pressure Balanced Body:	Pressure balanced, dual thixotropic gel filled chambers.
Seal Philosophy:	HTHP Glass-to-Metal optical penetrators, tapered seal, O-ring with PEEK backup ring
Optical Contacts:	Angled Physical Contact ferrules
Optical Fibre:	Mid-temperature, harsh environment

Qualification Testing

Note: All testing to SEAFOM TSD-01
Insertion Loss Test
Return Loss Test
Hydrostatic Pressure Test
Functional Mate / Demate in Turbid Conditions
Functional Mate / Demate in Cold Conditions
Misalignment Test
Thermal Shock Test
Flooded Termination Test
Individual Seal Pressure Test
Mechanical Shock Test
Vibration Test
Cyclical Pressure and Temperature Test
Helium Leak Test
Partial Mating Test

Key Performance Features

Both Connector halves are controlled
environment pressure balanced.
HPHT Application Materials
Energised Seals
Metal to Metal Sealing
APC Optical Ferrules

