

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 DHPT 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 multimode
Contact Method:	APC Ferrule
Insertion Loss:	≤ 0.5 dB Single Mode (1310nm, 1550nm & 1625nm) ≤ 0.5 dB Multimode (850nm & 1300nm)
Return Loss:	≤ -50 dB Single Mode (qualification requirement ≤ -35 dB) ≤ -50 dB Multimode (qualification requirement ≤ -35 dB)
Max. Optical Crosstalk:	≤ -60 dB Single Mode ≤ -60 dB Multimode

Material Specification

Housing:	Receptacle - HS Cupronickel Alloy Plug - Stainless Steel 316 (max. 22 HRC)
Contact:	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 G651.1 (MM) and G.657 and G652D (SM)

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

