

WellConnect™

Subsea WHO Fibre Optic Penetrator

The Wellhead Outlet (WHO) Penetrator is a Dry Mateable Subsea Fibre Optic Connector designed to provide continuous optical connection through Wellhead equipment. Typically this will be from a Tree mounted Wet mateable Connector to a Diver/ROV Connector situated at the Junction Box. The Connector is mounted to a Flange which is then mounted to a pre-machined face on the Wellhead equipment. The mating half of the Connector is terminated to an Oil Filled Subsea Jumper via an Omnitec Mk 2 interface or Subsea Connector.

Operational Requirements

Location within Completion:	Subsea, Wellhead
Rated Pressure:	20,000 Psi
Test Pressure:	30,000 Psi
Working Temperature Range:	0°F to 302°F (-18°C to 150°C)
Storage Temperature Range:	-40°F to 158°F (-40°C to 70°C)
Deployment Water Depth:	0-10,000ft (0-3,048m)

Mechanical Requirements

Connection Cycle Life:	>100
Sealing:	M-M Primary, Elastomeric Secondary
Orientation:	Keyed interfaces

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 Options:	Stainless Steel 316 SAF 2205, 17-4PH Stainless Steel or HS Cupronickel in compliance with ISO15156/NACE MR0175
Seal Options:	Hydrogenated Nitrile Rubber, Fluorosilicone, Rubber or Silicone

Design Philosophy

Ease of Termination
Pressure Testable
Independent Design Review Validation

Interfaces

WHO Interface API and Grayloc Sealing Flanges, as per customers requirements.
Including as minimum; 1-11/16", 2-1/16" - API BX 150, 152 Ring
Tree Cable Termination 1/8" Encapsulated/Hydraulic Tube or 1/4" Encapsulated/Hydraulic Tube
Oil Filled Jumper/Hose Termination Omnitec Mk 2 Fitting or Subsea Connector

Qualification Testing

Optical Insertion Loss
Optical Return Loss
Optical Power
Hydrostatic Pressure Test
PR2 Test (Pressure & Thermal Cycle)
Vibration Test
Gas Test
Reverse Pressure Test
Individual Seal Test

Key Performance Features

Flexible Design Suiting any Wellhead Prep
Ease of termination

