

20,000-psi Vertical Tree Instrumentation Electrical Feedthrough System

HPHT electrical feedthrough for subsea vertical trees



Temperature:
 Rated to 302 degF [150 degC]



Pressure:
 Rated to 20,000 psi [138 MPa]

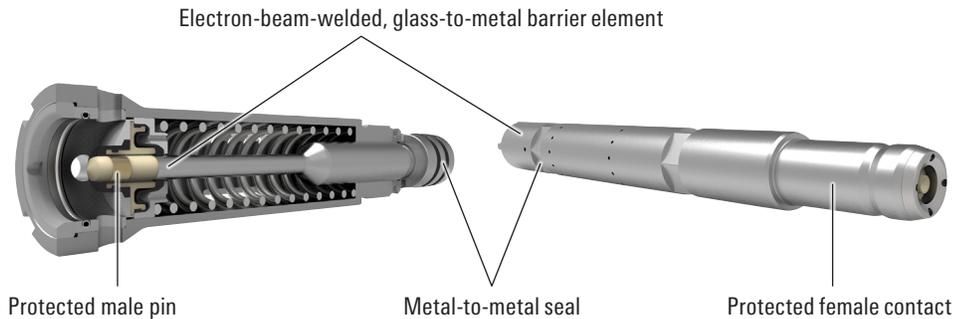
Applications

HPHT conditions

How it improves operations

The 20,000-psi vertical tree instrumentation electrical feedthrough system (EFS) in the OneSubsea® portfolio of Diamould* electrical connectors addresses electrical feedthrough pressure barriers for HPHT conditions and delivers the highest pressure and temperature ratings in the industry. Based on patented and field-proven, wet-mateable technology and cable termination methods, the vertical tree instrumentation EFS provides all the functionality expected from an industry standard, plus differentiating features to improve reliability and long-term performance:

- male pins protected in dielectric-filled wipers to increase the electric tracking distance to earth for corrosion protection when demated
- electron-beam-welded electrical pressure barriers that eliminate the need for O-rings
- glass-to-metal pressure barriers for robust HPHT performance
- tertiary electrical insulation system for improved insulation and temperature
- crimp termination technology that provides a clean, repeatable means of cable termination, eliminating potential quality issues and the need for soldered terminations.



Tubing hanger wet-mate receptacle (left) and tree wet-mate plug (right).

Additional information

When used for long-term sealing, O-rings are subject to compression set and decompression damage. The vertical tree instrumentation EFS is available with metal-to-metal and glass-to-metal electrical pressure barriers that are qualified to API Spec 6A Product Specification Level (PSL) 3G for well integrity, eliminating the need for O-rings and elastomers as a long-term seal solution in critical wellhead applications. The system is also in compliance with Intelligent Well Interface Standardization Recommended Practice (IWIS RP A2).

Vertical Tree Instrumentation Electrical Feedthrough System Specifications

Mechanical and Environmental

Operating temperature range, degF [degC]	0 to 302 [-18 to 150]
Storage temperature, degF [degC]	-40 to 167 [-40 to 75]
Maximum operating pressure, psi [MPa]	20,000 [138]
Rated water depth, ft [m]	10,000 [3,048]
Number of mating cycles	100
Design life, yr	30

Electrical

Voltage rating, VDC	1,000
Insulation resistance at 68 degF [20 degC], Gohm	>500

Materials

Connector housings	INCONEL® 625 INCONEL® 718
Contacts	Gold-plated COLSIBRO® copper alloy
Insulation	Polyetheretherketone (PEEK-HT®)
Sealing systems	Metal to metal Glass to metal Bespoke FKM and FFKM compounds

Qualification Compliance

IWIS RP A2
ISO 1368-4 (API Spec 17D)
ISO 10423 (API Spec 6A)

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