

## Hybrid Wellhead Outlet

Explosive-proof wellhead outlet connector for WellWatcher Neon system cables

### APPLICATIONS

- Hybrid wellhead outlet cable termination in hazardous, explosive environments
- WellWatcher Neon\* DTS, DAS, and PT gauge system installations, where both optical and electrical elements are terminated within the same connector

### ADVANTAGES

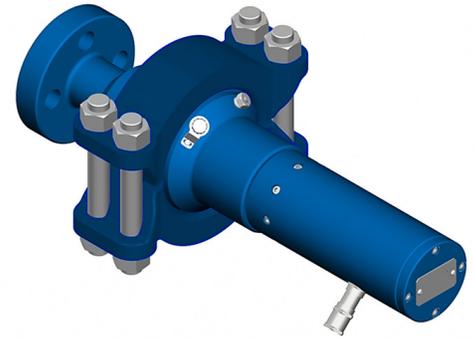
- Single wellhead penetration for multiple electrical and optical gauges
- Optical and electrical monitoring with a single permanent downhole cable
- Hybrid cable and connections with a physical profile compatible with existing WellWatcher\* permanent monitoring systems' products and procedures
- Continuous or intermittent monitoring without the need for well intervention
- Capability to support both single-ended and double-ended fiber measurements

The hybrid wellhead outlet enables the optical fiber and conductor to transition safely from the hybrid cable in the downhole environment to the surface environment where measurements and data acquisition are performed. Potential leaks through the hybrid cable are contained by the hybrid wellhead outlet. This is accomplished by providing a pressure chamber with a bulkhead containing optical and electrical penetrations that are connected to the optical fiber and conductor of the hybrid cable. The surface cable fiber and conductor are connected to the ambient side of the bulkhead.

The hybrid wellhead outlet is an ATEX 94/9/EC certified Ex db flame proof enclosure for the prevention and containment of potential ignition in the presence of an explosive mixture.

The hybrid wellhead outlet with bulkhead is factory acceptance tested above the working pressure. During installation the outlet seals

are pressure testable. Additionally, the outlet has a pressure relief port with the fitting secured by a retaining ring to prevent unintentional removal. This port enables relief of any trapped pressure in the event disassembly is required.



Hybrid wellhead outlet.

### Hybrid Wellhead Outlet Specifications

Typical length, in [cm]	22 [55.9] (depending on the adapter type for the specific wellhead connection)
Wellhead interface	Variable (NPT, Grayloc®, BX flanges, autoclave, etc.)
Working pressure, psi [MPa]	5,000 to 15,000 [34.5 to 103.4]
Operating temperature, degF [degC]	32 to 185 [0 to 85]
Storage temperature, degF [degC]	-40 to 140 [-40 to 60]
Downhole cable	Hybrid WellWatcher Neon system cable
Number of optical fibers	Variable; 3 maximum
Typical installation optical insertion loss	≤ 0.5 dB (dependent on fiber types, fusion splice quality)
Typical back reflection	≤ 0.5 dB
Electrical connections	1
Wiring type	18 AWG (downhole), 16–22 AWG (surface cable)
Maximum voltage	50 V <sub>AC</sub>
Maximum current	5 A
Insulation resistance	> 2 GΩ at 500 VDC
Material	NACE MR0175 compliant (limited to 1.5 psi H <sub>2</sub> S)
Hazardous area rating	ATEX directive 94/9/EC with IEC 60079-0, IEC 60079-1, UL1203 NEC C1 D1 (available on request)
Classification	Ex II 2 G Ex d IIC T6 IP66 Gb CE

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