# Type H, Wellhead Outlets, Hybrid

## Ensuring safe and reliable operations in permanent completions all around the world

**A safe and reliable electro-mechanical and fiber optic device, designed for use in hazardous areas to connect downhole control lines to surface cable. The Type H solution is straightforward to install and designed specifically to meet individual customer requirements.**

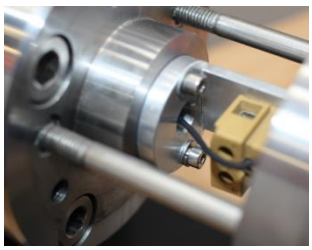
AnTech's Hybrid Wellhead Outlets combine our ATEX/IECEx certified electrical units (Type C or Type X) with our fiber Type F units. The integrated flange design provides a means of connecting the electrical cable to surface cable in Zone 1 hazardous areas, combined with an innovative fiber optic outlet for safe handling of fragile fiber.

The Type H Outlets use reliable metal-to-metal seals, flanged & bolted and threaded wellhead connections to maintain a barrier to well pressure at all times.

All models have been designed in compliance with API 6A and NACE/MR0175 and the tried and tested design methodology has been installed and used successfully on over 1000 wells around the world for permanent completions. The main components have a standard design for the majority of configurations, with the flange design depending on the wellhead connection.

The range allows for the many variations of electrical and fiber cables, wellhead connections and hazardous area requirements.

Low cost solutions can be achieved with the combination of our electrical Type CA/CB and fiber optic Type FC.



## Features & Benefits

- Meets the highest level of industry safety standards for hazardous areas
- Bespoke solutions
- High pressure ratings available up to 15ksi
- Simple and easy installation
- Ability to pressure test upon installation
- Multiple additional engineering options as requested
- Cost effective options

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# Technical Specifications for our Type H Wellhead Outlet Range

| Product | | Type HA | Type HB | Type HC |
|---|---|---|---|---|
| Connection Type | | As per customer requirements | | |
| Working Pressure | Psi / MPa | 15,000 psi / 103.0 MPa | | |
| API6A/ISO10423 Rating | | -20°C ≤ T ≤ 150°C FF-NL PSL 3<br>Other options available:<br>PR2 and PSL 3G | -20°C ≤ T ≤ 150°C FF-NL PSL 3<br>Other options available:<br>PR2 and PSL 3G | -20°C ≤ T ≤ 100°C FF-NL PSL 3<br>Other options available:<br>PR2 and PSL 3G |
| ATEX/IECEx Rating (For electrical outlet only) | | Ex e IIC T3 Gb | Ex e IIC T3 Gb | Ex db IIC T3 Gb |
| Fire Tested API 6FB (Offshore) | | No | Yes | No |
| Ambient Temperature | °C | -20 °C to +150 °C | -20 °C to +150 °C | -20 °C to +100 °C |
| | °F | 4 °F to +302 °F | 4 °F to +302 °F | -4 °F to +212 °F |
| Primary barrier method | | Metal to metal seal | Metal to metal seal | Metal to metal seal |
| Secondary barrier method (Elec/Fiber) | | Glass to metal/Metal to epoxy | Glass to metal/Metal to epoxy | Glass to metal/Metal to epoxy |
| Compatible lines | Diameter | 1/8", 1/4" or 4mm | 1/8", 1/4" or 4mm | 1/8", 1/4" or 4mm |
| | Material | Stainless Steel / Incoloy | Stainless Steel / Incoloy | Stainless Steel / Incoloy |
| Number of barriers | | 2 | 2 | 2 |
| Max. current | Single/Dual conductor | 3A | 3A | 5A Single only |
| | Triple conductor | 3A | 3A | N/A |
| Max. peak voltage | | 275V (up to 440V†) | 275V (up to 440V†) | 450V |
| Ingress protection | | IP54 Min | IP54 Min | IP68 |
| Ability to pressure test upon installation | | Yes | Yes | Yes |
| Sour Service** | | As standard | | |
| CO2 Service | | As per customer requirements | | |
| Acid Service | | As per customer requirements | | |
| Approximate Dimensions | Length mm/in | 735/29 | 735/29 | 686/27 |
| | Diameter mm/in | 367/14.5 | 367/14.5 | 392/15.5 |

*Customer line type dependent, **In compliance with NACE MR 00175/ISO 15156, † Dependent on ATEX temperature range requirements