

VE Technology Thermowell

DESCRIPTION

The VE Technology® Thermowell (VETW) is an innovative device supplying the user with a safe, accurate temperature measurement of the process stream.

The VETW adopts the same unique design principles as the VE sample probe; incorporating precisely engineered helical strakes and an aerodynamically shaped tip.

By implementing these patented design features associated with VE, Vortex induced Vibrations (ViV) are eliminated and this removes the need to perform wake frequency calculations.

The solution is a longer, more slender, faster and more accurate response thermowell. Essentially future proofing the thermowell against future process changes, providing a quick solution for last minute site turnarounds (by avoiding the need to check wake calcs and modify designs) and delivering a product that not only eliminates the risk of failure due to ViV, but also protects the temperature element, nozzle or other nearby equipment from potential damage due to vibrations.

Achieving real time data output accurately is essential in many different applications for a number of reasons. Therefore, the principle behind the VE Technology design is dedicated to providing the safest and best performing solution possible.



BENEFITS

- 1) **Patented helical strakes**; eliminating vortex induced vibrations, associated probe stresses and flow disturbances downstream of the thermowell insertion. The helical design breaks up vortices into an irregular and random pattern, thus guarantees that the probe will never hit its resonant vibration and that the Von Karman effect downstream is significantly reduced.
- 2) **Patented Aerodynamic probe tip** eliminates tip vortices, which are associated with conventional non-aerodynamic thermowells. This aerodynamic design allows for the boundary layer between the thermowell probe tip and the main body of the gas to be minimised and this streamline flow allows for a much more responsive and representative temperature measurement.
- 3) **Thinner probe walls**. Due to the patented helical strakes, the structural strength of the VETW is significantly enhanced, which enables the probe walls to be manufactured much thinner improving the accuracy and response time of the temperature element located within
- 4) **ASME PTC 19.3 2016**; the unique design of the VE thermowell conforms to the relevant sections of ASME PTC 19.3 2016, yet sits outside the scope of the standard. Therefore, wake frequency calculations are no longer a concern or a requirement.

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SPECIFICATIONS

Process Conditions	Up to class 2500 Central 1/3" sampling pipeline sampling Maximum velocities limited only by bending loads, offering significant increases in length or reduction in diameter compared to conventional thermowells
Welding	Weld procedures – ASME IX Welders qualification – ASME IX Welding inspection – ASMEV Or others by request
Connections	Process connection - flange, threaded & weld-in all available Instrument connection – 1/2" NPT as standard others available
Materials	Housing – 316/316L Stainless steel, Duplex, Super Duplex, Inconel 625, Incolloy 825, Monel 400, Brass, Thermalloy 153, Thermalloy 117, Hexalloy® and others by request NACE MR-0175 and NACE MR-0103 available by request
Construction	Forged – forged bar or hammer forged Welded – full penetration weld, screwed and welded and twin fillet, others available by request
Conformity	The structure and nature of the VETW exclude it from the scope of all EU Directives; therefore, it cannot bear the CE mark. The VETW is designed to SEP. The VETW is made from a single piece of bar stock material and has no welds in conformance with ASME PTC 19.3TW 2016 The patented helical strake of the VETW eliminates vortex induced vibrations and therefore, does not require wake frequency calculations. This design conforms to all applicable sections of ASME PTC 19.3TW 2016. Full bending stress calculations available by request.
Testing	Optional: Assembly pressure tested to 1.5 x design pressure Material certification to EN 10204 2004 type 3.1 Dye penetrant inspection, ultrasonic, PMI and others by request
Standard Options	Temperature element – as specified by the customer Temperature transmitter – as specified by the customer Plug and chain
Installation	User instructions - Please see IOM 008 for installation, operation, maintenance and removal instructions

