

Thermowells

A Standard for Engineers Worldwide

ASME PTC 19.3 TW - 2010

The long awaited PTC 19.3 TW-2010 is a completely new standard that establishes the practical design considerations for thermowell installations in power and process piping. This code is an expanded version of the thermowell section contained in the PTC 19.3-1974, and incorporates the latest theory in the areas of natural frequency, Strouhal frequency, in-line resonance and stress evaluation.

ASME responded to changing industry demands for a more comprehensive set of thermowell evaluations. Key enhancements over the 1974 edition include:

- Expanded coverage for thermowell geometry;
- Natural frequency correction factors for mounting compliance, added fluid mass, and sensor mass;
- Consideration for partial shielding from flow,
- Intrinsic thermowell damping;
- Steady state and dynamic stress evaluations;
- Improved allowable fatigue limit definition.

PTC 19.3 has been the standard used by piping designers since it's release and has been highly successful in the industry. **The new, expanded PTC 19.3 TW edition—developed by end users and manufacturers—builds on decades of industry and research data to make it the new worldwide authority for thermowell design safety.**

Intended for piping designers, instrument engineers, instrument designers and plant I/C engineers/designers, plant engineers, plant safety engineers, process engineers, thermowell manufacturers, instrument manufacturers, anyone who assembles thermowell bids or design specifications, and regulatory agencies.

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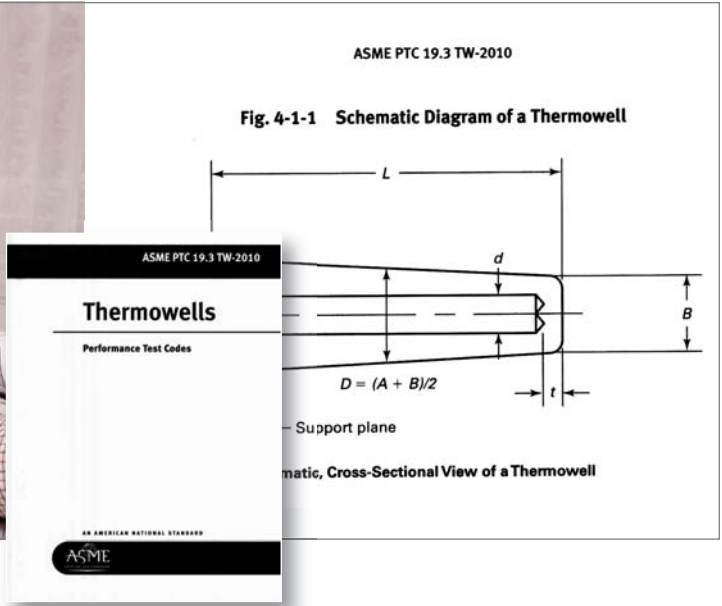
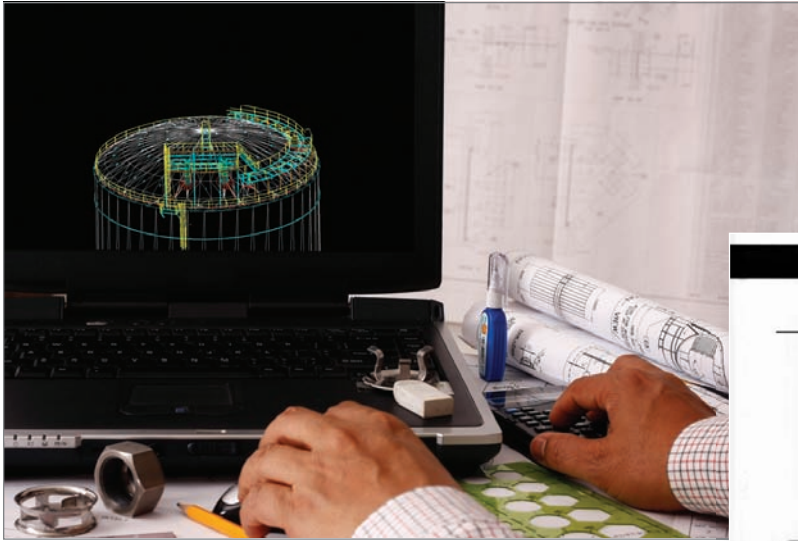
ISBN:9780791833070
 No. Pages:..52
 Price:\$75.00 USD

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ASME Codes and Standards

ASME is the leading international developer of codes and standards associated with the art, science, and practice of mechanical engineering. Starting with the first issuance of its legendary Boiler & Pressure Vessel Code in 1911, ASME's codes and standards have grown to nearly 600 offerings currently in print. These offerings are being used in over 100 nations; thus setting the standard for code-development worldwide.



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The Industry Speaks

“The industry had been anticipating for this update for some time. Our customers around the world were excited to finally see some emphasis placed on a trouble spot in their plants. Many designers I spoke with in the U.S. and abroad welcomed the change and were re-energized to use the new standard to evaluate thermowells on their next project.”

—Dirk Bauschke
Engineering Manager
Emerson Process Management
Rosemount Measurement Division

“By covering a broad range of straight, tapered, and step-shank thermowells, the new PTC 19.3 TW-2010 standard provides a uniform method of designing thermowells for many applications. Although the primary purpose of the standard is to ensure safe and reliable installations, meeting this standard will also have reduced sensor vibration, which is an underappreciated source of measurement error and maintenance costs.”

—Dean Ripple
Acting Group Leader, Process Sensing Group
National Institute of Standards and Technology

“PTC 19.3 TW-2010 provides a more thorough explanation of the calculations involved in thermowell design. It includes concepts of in-line resonance, fatigue and mounting compliance for more accurate results. It allows the designer to take advantage of the computational power of modern computers by replacing the old tabulated coefficients with theoretical and empirical formulas. It broadens the range of geometries beyond the old tabulated values. It includes stepped geometries which have been requested by our customers for years.”

—Allan Heisler
Project Engineer
Pyromation, Inc.

“The new PTC 19.3TW is a significant improvement and update over the previous guidelines. It finally consolidates the recommendations and observations that have been prevalent in the industry for years, but not formalized or documented through a generally accepted publication. I have already encountered an application where the new standard correctly predicted a previously documented thermowell failure where the existing standard did not.”

—Allan G. Gilson, P.E.
Instrumentation and Controls Section Head
Black and Veatch Energy Division

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