PROCESS INDUSTRY PRACTICES

December 2017

Electrical

PIP ELSTR06
Dry Type Power Transformers

PURPOSE AND USE OF PROCESS INDUSTRY PRACTICES

In an effort to minimize the cost of process industry facilities, this Practice has been prepared from the technical requirements in the existing standards of major industrial users, contractors, or standards organizations. By harmonizing these technical requirements into a single set of Practices, administrative, application, and engineering costs to both the purchaser and the manufacturer should be reduced. While this Practice is expected to incorporate the majority of requirements of most users, individual applications may involve requirements that will be appended to and take precedence over this Practice. Determinations concerning fitness for purpose and particular matters or application of the Practice to particular project or engineering situations should not be made solely on information contained in these materials. The use of trade names from time to time should not be viewed as an expression of preference but rather recognized as normal usage in the trade. Other brands having the same specifications are equally correct and may be substituted for those named. All Practices or guidelines are intended to be consistent with applicable laws and regulations including OSHA requirements. To the extent these Practices or guidelines should conflict with OSHA or other applicable laws or regulations, such laws or regulations must be followed. Consult an appropriate professional before applying or acting on any material contained in or suggested by the Practice.

This Practice is subject to revision at any time.

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1. Scope

This Practice contains the minimum requirements for design, manufacture, inspection, testing, and shipping of air cooled dry type power transformers with ratings up to and including 30,000 kVA with voltage ratings 34.5kV and below.

2. References

Applicable parts of the following Practices and industry codes and standards shall be considered an integral part of this Practice. The edition in effect on the date of contract award shall be used, except as otherwise noted. Short titles are used herein where appropriate.

Industry Codes and Standards

- American Society of Civil Engineers
  - ASCE/SEI 7 - *Minimum Design Loads for Building and Other Structures*
- The American Society of Mechanical Engineers (ASME)
  - ASME B1.1 - *Unified Inch Screw Threads*
- American Society for Standards and Materials (ASTM)
  - ASTM D1535 - *Standard Practice for Specifying Color by the Munsell System*
- Code of Federal Regulations (CFR)
  - Title 10 CFR - *Energy; Chapter II - Department of Energy; Subchapter D - Energy Conservation; Part 431 - Energy Efficiency Program for Certain Commercial and Industrial Equipment*
- Institute of Electrical and Electronics Engineers (IEEE)
  - IEEE 519 - *Recommended Practice and Requirements for Harmonic control In Electrical Power Systems*
  - IEEE C37.110 - *Guide for the Application of Current Transformers Used for Protective Relaying Purposes*
  - IEEE C57.12.01 - *General Requirements for Dry-Type Distribution and Power Transformers*
  - IEEE C57.12.28 - *IEEE Standard for Pad-Mounted Equipment - Enclosure Integrity (reference for coatings only)*
  - IEEE C57.12.29 - *IEEE Standard for Pad-Mounted Equipment-Enclosure Integrity for Coastal Environments (reference for coatings only)*
  - IEEE C57.12.51 - *Ventilated Dry-Type Power Transformers, 501 kVA and Larger, Three-Phase, with High-Voltage 601 V to 34 500 V; Low-Voltage 208Y/120 V to 4160 V—General Requirements*
  - IEEE C57.12.91 - *Test Code for Dry-Type Distribution and Power Transformers*
  - IEEE C57.13 - *Requirements for Instrument Transformers*
  - IEEE C57.12.80 - *IEEE Standard Terminology for Power and Distribution Transformers (ANSI/IEEE)*
  - IEEE C57.96 - *Guide for Loading Dry-Type Distribution and Power Transformers*
  - IEEE C57.120 - *Loss Evaluation Guide for Power Transformers and Reactors*