PROCESS INDUSTRY PRACTICES

September 2020

Electrical

PIP ELSSG13
Design and Fabrication of Medium-Voltage Gas-Insulated Switchgear up to 52kV

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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Data Form

1. Scope

This Practice covers the minimum requirements for design, fabrication, inspection, testing, shipment, and documentation for gas insulated switchgear containing gas-insulated buses, power circuit breakers, control, instrumentation, and metering for installation in unclassified areas. This Practice also covers remote monitoring and control requirements.

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 will be used herein where appropriate.

2.1 Process Industry Practices (PIP)

- PIP ELSSG12 – *Design and Fabrication of Outdoor Enclosures for Motor Controllers and Switchgear*
- PIP ELTFT01 – *Electrical Equipment and Systems Field Inspection, Testing, and Commissioning*

2.2 Industry Codes and Standards

- American National Standard Institute, Inc. (ANSI)
  - ANSI Z535.4 – *American National Standard for Product Safety Signs and Labels*
- American Society of Civil Engineers (ASCE)
  - ASCE/SEI 7 – *Minimum Design Loads for Building and Other Structures*
- American Society for Testing and Materials (ASTM)
  - ASTM D2794 – *Standard Test Method for Resistance of Organic Coatings to the Effects of Rapid Deformation (Impact)*
  - ASTM D3363 – *Standard Test Method for Film Hardness by Pencil Test*
- Institute of Electrical and Electronics Engineers (IEEE)
  - IEEE C37.06 – *Standard for AC High-Voltage Circuit Breakers Rated on a Symmetrical Current Basis – Preferred Ratings and Related Required Capabilities for Voltages Above 1000V*
  - IEEE C37.20.2 – *Standard for Metal-Clad Switchgear*
  - IEEE C37.20.7 – *Guide for Testing Metal-Enclosed Switchgear Rated up to 38 kV for Internal Arcing Faults*
  - IEEE C37.21 – *Control Switchboards*
  - IEEE C37.100.1 – *Standard of Common Requirements for High-Voltage Power Switchgear Rated Above 1000 V*
  - IEEE C37.122.2 – *Guide for the Application of Gas-Insulated Substations 1kV to 52kV*
  - IEEE C57.13 – *Standard Requirements for Instrument Transformers*
- National Fire Protection Association (NFPA)
  - NFPA 70 – *National Electrical Code (NEC)*