



PROCESS
INDUSTRY
PRACTICES

COMPLETE REVISION
November 2016

Electrical

**PIP ELSPF01
Medium-Voltage Metal-Enclosed Power Factor
Correction Capacitor Specification
from 2.4 kV to 35 kV**

Currently in preview, click to buy full version

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 specification 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 or suggested by the Practice.

This Practice is subject to revision at any time.

© Process Industry Practices (PIP), Construction Industry Institute, The University of Texas at Austin, 3925 West Braker Lane (R4500), Austin, Texas 78759. PIP Member Companies and Subscribers may copy this Practice for their internal use. Changes or modifications of any kind are not permitted within any PIP Practice without the express written authorization of PIP. Authorized Users may attach addenda or overlays to clearly indicate modifications or exceptions to specific sections of PIP Practices. Authorized Users may provide their clients, suppliers and contractors with copies of the Practice solely for Authorized Users' purposes. These purposes include but are not limited to the procurement process (e.g., as attachments to requests for quotation/ purchase orders or requests for proposals/contracts) and preparation and issue of design engineering deliverables for use on a specific project by Authorized User's client. PIP's copyright notices must be clearly indicated and unequivocally incorporated in documents where an Authorized User desires to provide any third party with copies of the Practice.

PUBLISHING HISTORY

September 2011 *Issued*
November 2016 *Complete Revision*

Not printed with State funds



**PIP ELSPF01
Medium-Voltage Metal-Enclosed Power Factor
Correction Capacitor Specification
from 2.4 kV to 35 kV**

Table of Contents

- 1. Scope.....2**
- 2. References.....2**
 - 2.1 Process Industry Practices 2
 - 2.2 Industry Codes and Standards 2
- 3. Definitions 2**
- 4. Requirements..... 3**
 - 4.1 Service Condition 3
 - 4.2 Ratings 3
 - 4.3 Basic Construction 3
 - 4.4 Vacuum Switches 6
 - 4.5 Buses 7
 - 4.6 Control 8
 - 4.7 Paint 9
 - 4.8 Test and Inspection 9
 - 4.9 Nameplates 9
 - 4.10 Documentation 11
 - 4.11 Shipment 12
 - 4.12 Conflict Resolution 13

Data Sheet

ELSPF01-D - Medium-Voltage Metal-Enclosed Power Factor Correction Capacitors

1. Scope

This Practice provides minimum requirements for design, fabrication, inspection, testing, shipment, and documentation, for metal-enclosed power factor correction capacitors, from 2.4 kV to 35 kV, containing enclosure, lightning/surge arrester, transient inrush reactor, vacuum circuit breaker, capacitor, capacitor protection, insulated buses, and control for indoor/outdoor installation in unclassified areas. This Practice covers fixed, manual, and automatic switched capacitor banks.

2. References

Applicable parts of the following Practices, industry codes and standards, and references 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.

2.1 Process Industry Practices (PIP)

- PIP ELSPF01-D - *Medium-Voltage Metal-Enclosed Power Factor Correction Capacitors*
- PIP STC01015 - *Structural Design Criteria*

2.2 Industry Codes and Standards

- Institute of Electrical and Electronic Engineers (IEEE)
 - IEEE C37.20.2-2015 - *Standard for Metal-Clad Switchgear*
 - IEEE C37.66 - *Standard Requirements for Capacitor Switches for AC Systems (1kV to 38 kV)*
 - IEEE 18 - *Standard for Shunt Power Capacitors*
- International Electrical Testing Association
 - ANSI/NETA ATS 2013 - *Standard for Acceptance Testing Specifications for Electrical Power Equipment and Systems*
- National Electrical Manufacturers Association (NEMA)
 - NEMA 25 - *Enclosures for Electrical Equipment (1000 Volts Maximum)*
- Underwriters Laboratories (UL)
 - UL 508A - *Industrial Control Panels*

3. Definitions

owner: The party who owns the facility wherein the medium-voltage metal-enclosed power factor correction capacitor will be used

purchaser: The party who awards the contract to the supplier. The purchaser may be the owner or the owner's authorized agent.

purchaser's inspector: The purchaser's authorized representative with authority to act in the interest of, and on behalf of, the purchaser in all quality assurance matters

supplier: The party responsible for manufacturing, furnishing, and/or installing the medium-voltage metal-enclosed power factor correction capacitor