

# IEEE Guide for the Application of Shunt Power Capacitors

IEEE Power and Energy Society

Developed by the  
Transmission and Distribution Committee

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# **IEEE Guide for the Application of Shunt Power Capacitors**

Developed by the

**Transmission and Distribution Committee**  
of the  
**IEEE Power and Energy Society**

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**IEEE-SA Standards Board**

**Abstract:** This guide applies to the use of 50 Hz and 60 Hz shunt power capacitors rated 2400 Vac and above, and assemblies of such capacitors. Included are guidelines for the application, protection, and ratings of equipment for the improved safety and reliability in the utilization of shunt power capacitors. The guide is general and intended to be basic and supplemental to specific recommendations of the manufacturer. The guide covers applications that range from simple capacitor unit utilization to complex capacitor bank situations.

**Keywords:** capacitor, capacitor banks, externally fused, fuseless, IEEE 1036™, internally fused, power factor correction, shunt power capacitors

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## Introduction

This introduction is not part of IEEE Std 1036-2020, IEEE Guide for the Application of Shunt Power Capacitors.

This application guide is widely recognized as a useful guide, and it needs to be revised in order to continue its functional life as an active standard. The content has been reviewed and updated to make sure that it is in line with current industry developments and practices.

This revision also complements updates included in the recent revision of IEEE Std 18-2012. [Subclause 9.4](#) and [Annex B](#) have been added to provide additional information on shunt capacitor bank rating considerations and terminal-to-case voltage considerations.

## Contents

1. Scope.....	15
2. Normative references .....	15
3. Definitions.....	16
4. Power system considerations.....	18
4.1 Capacitor benefits.....	18
4.2 Size and number of capacitor banks.....	24
4.3 Control considerations.....	25
5. Capacitor rating capabilities and service conditions.....	26
5.1 Standard ratings.....	27
5.2 Related capabilities.....	30
5.3 Service conditions .....	33
6. Capacitor bank switching considerations .....	33
6.1 Switching of capacitors .....	33
6.2 Switching transients .....	34
6.3 Outrush current.....	50
6.4 Capacitor switching equipment .....	50
7. Harmonics .....	52
7.1 Capacitor limitations .....	52
7.2 Distortion limits.....	53
7.3 Operating and application considerations.....	53
7.4 Harmonic “problems”.....	54
8. Surge arresters.....	54
8.1 Substation applications.....	55
8.2 Distribution applications .....	55
9. Substation shunt power capacitor bank applications .....	56
9.1 Capacitor bank connections and grounding .....	56
9.2 Capacitor bank types .....	59
9.3 Protection .....	63
9.4 Shunt capacitor bank rating considerations .....	70
10. Shunt power capacitor applications on distribution lines .....	70
10.1 Protection .....	71
10.2 Sizing and locating capacitors .....	73
11. Inspection and maintenance .....	74
11.1 General .....	74
11.2 Safety and personnel protection.....	74
11.3 Initial inspection, measurements, and energization .....	75
11.4 Periodic inspection, measurements, and maintenance .....	76
11.5 Field testing .....	82
12. Special capacitor applications .....	83
12.1 Harmonic filters.....	83
12.2 Motor applications.....	84
12.3 Surge capacitors .....	85

Annex A (informative) Bibliography.....	87
Annex B (informative) Terminal to case voltage considerations .....	89

## List of Figures

Figure 1—Effect of adding shunt capacitors .....	19
Figure 2—Economical system power factor .....	21
Figure 3—Typical kilovar demand profile for switched and fixed capacitor banks .....	26
Figure 4—Maximum contingency power frequency overvoltage capability of capacitor units .....	31
Figure 5—Transient peak overvoltage capability of capacitor units.....	33
Figure 6—System diagram for energizing an isolated capacitor bank.....	35
Figure 7—Typical bus voltage and capacitor current during capacitor energizing .....	35
Figure 8—Example phase-to-phase transformer transient due to capacitor switching .....	37
Figure 9—Back-to-back switching circuit .....	40
Figure 10—Concept of synchronous closing control for ungrounded wye banks .....	42
Figure 11—System diagram for magnification condition.....	42
Figure 12—Equivalent circuit for magnification condition.....	43
Figure 13—Magnification of transient at remote capacitor bank.....	44
Figure 14—Adjustable speed motor drive: Voltage source inverter type with uncontrolled source converter .....	45
Figure 15—Transient voltages during capacitor switching .....	46
Figure 16—System diagrams for dynamic overvoltage conditions .....	47
Figure 17—Dynamic overvoltage on capacitors .....	47
Figure 18—Capacitor and bus voltage during de-energizing: (a) System frequency component of voltage and (b) system frequency and high-frequency component of voltage.....	48
Figure 19—De-energizing capacitor bank with restriking switching device.....	49
Figure 20—Single point grounding.....	57
Figure 21—Peninsula grounding .....	58
Figure 22—Schematic of an externally fused capacitor bank, single wye, 11 capacitors per series group, 4 series groups per phase .....	60
Figure 23—Schematic of an internally fused capacitor bank, wye-wye configuration with 24 capacitor units per phase.....	61
Figure 24—Schematic of a fuseless capacitor bank with 2 strings per phase, 12 capacitor units per string....	62
Figure 25—Grounded wye-connected, $\Delta$ , or grounded double wye-connected capacitor bank: Voltage on remaining capacitor units in series group versus percentage of capacitor units removed from series group .....	65
Figure 26—Ungrounded double wye-connected (neutrals tied together) capacitor bank: Voltage on remaining capacitor units in series group versus percentage of capacitor units removed from series group...	66

Figure 27—Ungrounded wye-connected or ungrounded double wye-connected (neutrals isolated) capacitor bank: Voltage on remaining capacitor units in series group versus percentage of capacitor units removed from series group .....	67
Figure 28—Typical case rupture curves for approximately 30 L case volume .....	73
Figure 29—Capacitor bank grounded in preparation for testing .....	78
Figure 30—Measurement of midpoint-to-ground capacitance for one string with capacitor bank phase and neutral grounded .....	78
Figure 31—Midpoint-to-ground measurement with one failed capacitor unit .....	79
Figure 32—Capacitance measurements across racks without and with a failed capacitor unit.....	79
Figure 33—Comparing capacitances with different numbers of capacitor units in various racks .....	80
Figure 34—Measuring individual capacitor units in a rack with an indicated failure.....	80
Figure 35—Capacitance measurement using a modified Schering bridge.....	81
Figure 36—Typical motor starting curve.....	85
Figure 37—Motor starting capacitor application .....	85
Figure 38—Surge capacitor application .....	86
Figure B.1—Example capacitor layout with $N_{SPR} = 4$ and $N_1 = N_2 = 2$ .....	89
Figure B.2—Diagram of series rack capacitance grading across a capacitor bank .....	91

## List of Tables

Table 1—Summary of benefits of applying shunt power capacitors.....	19
Table 2—Power factor correction kilowatt multipliers.....	22
Table 3—Typical power capacitor voltage and reactive power ratings.....	27
Table 4—Maximum ambient.....	30
Table 5—Capacitor peak transient current capability.....	32
Table 6—Restrike performance classifications .....	51
Table 7—Voltage distortion limits for medium- and high-voltage power systems .....	53
Table 8—Typical capacitance values for line-to-ground surge capacitors.....	86
Table B.1—Typical capacitor bank rack configurations .....	90
Table B.2—Relation of LOW bus voltage terminal-to-case (TC) to maximum terminal-to-terminal (TT) based on capacitor bank rack configuration .....	93
Table B.3—Example comparison of terminal-to-case insulation to standard levels.....	94

# IEEE Guide for the Application of Shunt Power Capacitors

## 1. Scope

This guide applies to the use of 50 Hz and 60 Hz shunt power capacitors rated 2400 Vac and above, and assemblies of such capacitors. Included are guidelines for the application, protection, and ratings of equipment for the improved safety and reliable utilization of shunt power capacitors. The guide is general and intended to be basic and supplemental to specific recommendations of the manufacturer. The guide covers applications that range from simple capacitor unit utilization to complex capacitor bank situations.

## 2. Normative references

The following referenced documents are indispensable for the application of this document (i.e., they must be understood and used, so each referenced document is cited in text and its relationship to this document is explained). For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments or corrigenda) applies.

Accredited Standards Committee C2-2012, National Electrical Safety Code® (NESC®).<sup>1,2</sup>

IEEE Std 18™, IEEE Standard for Shunt Power Capacitors.<sup>3,4</sup>

IEEE Std 141™-1993 (Reaff 1999), IEEE Recommended Practice for Electric Power Distribution for Industrial Plants (*IEEE Red Book™*).

IEEE Std 519™, IEEE Recommended Practices and Requirements for Harmonic Control in Electric Power Systems.

IEEE Std 1247™, IEEE Standard for Interrupter Switches for Alternating Current, Rated Above 1000 Volts.

IEEE Std 1531™, IEEE Guide for Application and Specification of Harmonic Filters.

IEEE Std C37.012™, IEEE Guide for the Application of Capacitance Current Switching for AC High-Voltage Circuit Breakers Above 1000 V.

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