



1015TM

IEEE Recommended Practice for

**Applying Low
Voltage Circuit
Breakers Used in
Industrial and
Commercial Power
Systems**

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IEEE Recommended Practice for Applying Low-Voltage Circuit Breakers Used in Industrial and Commercial Power Systems

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of the
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Abstract: Information is provided for selecting the proper circuit breaker for a particular application. This recommended practice helps the application engineer specify the type of circuit breaker, ratings, trip functions, accessories, acceptance tests, and maintenance requirements. It also discusses circuit breakers for special applications, e.g., instantaneous only and switches. In addition, it provides information for applying circuit breakers at different locations in the power system, and for protecting specific components. Guidelines are also given for coordinating combinations of line-side and load-side devices.

Keywords: circuit breakers, circuit breaker evaluation, insulated case, insulated-case circuit breakers, low-voltage circuit breaker, low-voltage power circuit breaker, low-voltage protection, low-voltage protection device, molded case, molded-case circuit breaker, overcurrent protection, power circuit breaker, rating, testing

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Introduction

This introduction is not part of IEEE Std 1015-2006, IEEE Recommended Practice for Applying Low-Voltage Circuit Breakers Used in Industrial and Commercial Power Systems.

This introduction provides an engineer a comprehensive reference source to aid in deciding what type of low-voltage circuit breaker to use for a particular application, and how to apply the circuit breaker. This recommended practice includes a comparison between the standards of low-voltage power circuit breakers and molded-case circuit breakers so that an engineer can make better, more informed choices. Pertinent tables have been extracted from other standards to provide the basis for the selection and application guidelines. In addition, specific application examples are provided.

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This recommended practice is dedicated in memory of Shaun Slattery. The Working Group especially acknowledges his contributions to the original development of this recommended practice and his valuable insight into the material contained within this revision.

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CONTENTS

Chapter 1

Overview.....	1
1.1 Scope.....	1
1.2 Two classifications of breakers.....	1
1.3 Description of a molded-case circuit breaker.....	2
1.4 Description of a low-voltage power circuit breaker.....	3
1.5 Document organization.....	6
1.6 Summary.....	8
1.7 Normative references.....	8
1.8 Bibliography.....	9

Chapter 2

Definitions, acronyms, and abbreviations.....	11
2.1 Definitions.....	11
2.2 Acronyms and abbreviations.....	17
2.3 Normative references.....	18
2.4 Bibliography.....	18

Chapter 3

Rating and testing.....	19
3.1 Relevance of rating and testing.....	19
3.2 The ideal circuit breaker.....	19
3.3 The practical circuit breaker.....	19
3.4 Basic circuit-breaker selection criteria.....	20
3.5 The role of industry standards.....	20
3.6 The role of safety and industry codes.....	21
3.7 Comparison of testing requirements.....	21
3.8 Circuit-breaker classes and types.....	22
3.9 Generalized application considerations.....	23
3.10 References on rating and applications.....	23
3.11 Endurance considerations.....	24
3.12 Circuit-breaker voltage rating considerations.....	28
3.13 Frequency rating and considerations.....	30
3.14 Temperature considerations.....	31
3.15 Enclosure considerations.....	32
3.16 Cable, wire, and conductor considerations.....	34
3.17 De-rating for ambient temperature.....	38
3.18 Circuit-breaker humidity limitations.....	39
3.19 Circuit-breaker altitude limitations.....	40
3.20 Circuit-breaker ampere rating.....	41
3.21 National Electrical Code considerations.....	41
3.22 Preferred current ratings.....	42
3.23 Load effects.....	49
3.24 The effect of nonlinear loads on circuit breakers.....	49
3.25 The effect of high inrush loads.....	50

3.26	Overload testing of circuit breakers	50
3.27	Forced-air cooling of LVPCBs	55
3.28	Short-circuit interrupting rating	55
3.29	Fault-current calculation considerations	57
3.30	Circuit-breaker interrupting ratings	57
3.31	Single-pole fault interruption testing	58
3.32	Circuit-breaker evaluation in standards for testing	58
3.33	Blow-open contact arms	65
3.34	Circuit breaker useful life	65
3.35	Considerations on interrupting duty and maintenance	66
3.36	Integrally fused devices	66
3.37	Series-connected rating	67
3.38	Cascade arrangement	68
3.39	Short-time rating	68
3.40	Circuit-breaker evaluation for X/R ratio or short-circuit power factor	69
3.41	Single-pole interrupting capability and power system design considerations	70
3.42	Applying ac thermal-magnetic molded-case circuit breakers using their UL 489 dc rating	73
3.43	Normative references	76
3.44	Bibliography	77
Chapter 4		
	Specific applications	79
4.1	Scope	79
4.2	Selection considerations	79
4.3	Selection approach for application requirements	80
4.4	Selection approach for electrical ratings	80
4.5	Modifications and accessories for specific applications	95
4.6	Normal versus abnormal conditions	98
4.7	Considerations for applying MCCBs, ICCBs, and LVPCBs	99
4.8	Service requirements and protection	100
4.9	Main circuit breakers	100
4.10	Tie circuit breakers	102
4.11	Feeder protection	103
4.12	Normative references	132
4.13	Bibliography	133
Chapter 5		
	Selective coordination of low-voltage circuit breakers with other protective devices	135
5.1	Introduction	135
5.2	Low-voltage power circuit breakers	135
5.3	Low-voltage MCCBs and ICCBs	139
5.4	Other coordinating devices	140
5.5	Coordination examples	142
5.6	Normative references	154
5.7	Bibliography	155

Chapter 6

Fused and special-purpose circuit breakers	157
6.1 Introduction.....	157
6.2 Instantaneous-trip circuit breakers.....	157
6.3 Mine-duty circuit breakers.....	160
6.4 Current-limiting circuit breakers	162
6.5 Molded-case switches	164
6.6 Fused circuit breakers	165
6.7 Circuit breaker and ground-fault circuit interrupter	166
6.8 Arc-fault circuit interrupter.....	167
6.9 Supplementary protectors	168
6.10 Normative references	169
6.11 Bibliography	170

Chapter 7

Acceptance and maintenance requirements	171
7.1 Scope.....	171
7.2 Maintenance program	171
7.3 Maintenance of MCCBs	173
7.4 Maintenance of LVPCBs	175
7.5 Maintenance and testing of ICCBs	176
7.6 Maintenance and testing of molded-case switches	176
7.7 Maintenance of ground-fault circuit interrupters (GFCIs)	176
7.8 Documenting maintenance results	177
7.9 Testing program.....	177
7.10 Failures detected	185
7.11 Normative references	185
7.12 Bibliography	187
Annex 7A (informative) MCCB data record	188
Annex 7B (informative) LVPCB data record	194

IEEE Recommended Practice for Applying Low-Voltage Circuit Breakers Used in Industrial and Commercial Power Systems

Chapter 1 Overview

1.1 Scope

This recommended practice provides information for selecting the proper circuit breaker for a particular application. This recommended practice helps the application engineer specify the type of circuit breaker, ratings, trip functions, accessories, acceptance tests, and maintenance requirements. It also discusses circuit breakers for special applications, e.g., instantaneous only and switches. In addition, it provides information for applying circuit breakers at different locations in the power system and for protecting specific components. Guidelines are given for coordinating combinations of line-side and load-side devices. Acceptance testing and maintenance guidelines are provided so that reliable operation can be verified and maintained.

This recommended practice does not cover the selection and application of circuit breakers such as marine circuit breakers and definite purpose circuit breakers.

1.2 Two classifications of breakers

There are two main classifications of low-voltage circuit breakers: molded-case circuit breakers and low-voltage power circuit breakers. Within the molded-case circuit breaker classification, there is another type of circuit breaker called the insulated-case circuit breaker. The construction and characteristics of these three types will be discussed. Throughout the balance of this recommended practice, these devices will be referred to as follows:

- MCCB: molded-case circuit breaker
- ICCB: insulated-case circuit breaker
- LVPCB: low-voltage power circuit breaker

Each one of these circuit breakers has different design characteristics and, in many cases, different application requirements.