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IEEE Recommended Practice for the Selection, Field Testing, and Life Expectancy of Molded-Case Circuit Breakers for Industrial Applications

IEEE Industry Applications Society

Sponsored by the
Petroleum and Chemical Industry Committee

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USA

IEEE Std 1458™-2017
(Revision of
IEEE Std 1458-2005)

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Abstract: A recommended procedure for the selection, application, and determination of the remaining life in molded-case circuit breaker is provided.

Keywords: available fault values, circuit breaker testing, IEEE 1458, insulated-case circuit breakers, molded-case circuit breakers, molded-case circuit breakers basics, molded-case circuit breakers life, safety

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Introduction

This introduction is not part of IEEE Std 1458-2017, IEEE Recommended Practice for the Selection, Field Testing, and Life Expectancy of Molded-Case Circuit Breakers for Industrial Applications.

This recommended practice provides in one document the information necessary to select, apply, and estimate the remaining life of molded-case circuit breakers. This standard is intended to be used by para-professionals and is not a high-level engineering document.

The 2017 revision of this document includes several additions from the original 2005 publication, including:

—Inspection and testing procedures for insulated-case circuit breakers

—Guidelines on re-use of low-voltage circuit breakers

—Application of molded-case breakers on dc power systems

—Application of molded-case breakers on ac power systems with frequencies above 60 Hz

—Fault charcteristics of static converters and the impact on circuit breaker interrupting rating

Contents

List of Figures

List of Tables

IEEE Recommended Practice for the Selection, Field Testing, and Life Expectancy of Molded-Case Circuit Breakers for Industrial Applications

1. Overview

1.1 Scope

This document provides a recommended practice for the selection, application, and determination of the remaining life in molded-case circuit breakers used in industrial applications.

1.2 Purpose

Molded-case circuit breakers are one of the most widely used circuit protection devices in low-voltage (less than 1000 V [ac], 1500 V [dc]) applications. In spite of their wide use in industry, the average person specifying, installing, operating, and maintaining these devices has less than a complete understanding of them. The purpose of this document is to provide people who purchase or maintain molded-case circuit breakers with a single document that includes the following information:

—How molded-case circuit breakers operate

—How to correctly size and select molded-case circuit breakers

—How to safely maintain molded-case circuit breakers

—How to determine when a molded-case circuit breaker must be replaced

1.3 The installation code in the United States is the National Electrical Code® (NEC®)

For simplicity this recommended practice will refer to requirements in the NEC.[1,2]

[1]The NEC is published by the National Fire Protection Association (http://www.nfpa.org/). Copies are also available from The Institute of Electrical and Electronics Engineers (http://standards.ieee.org/).
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